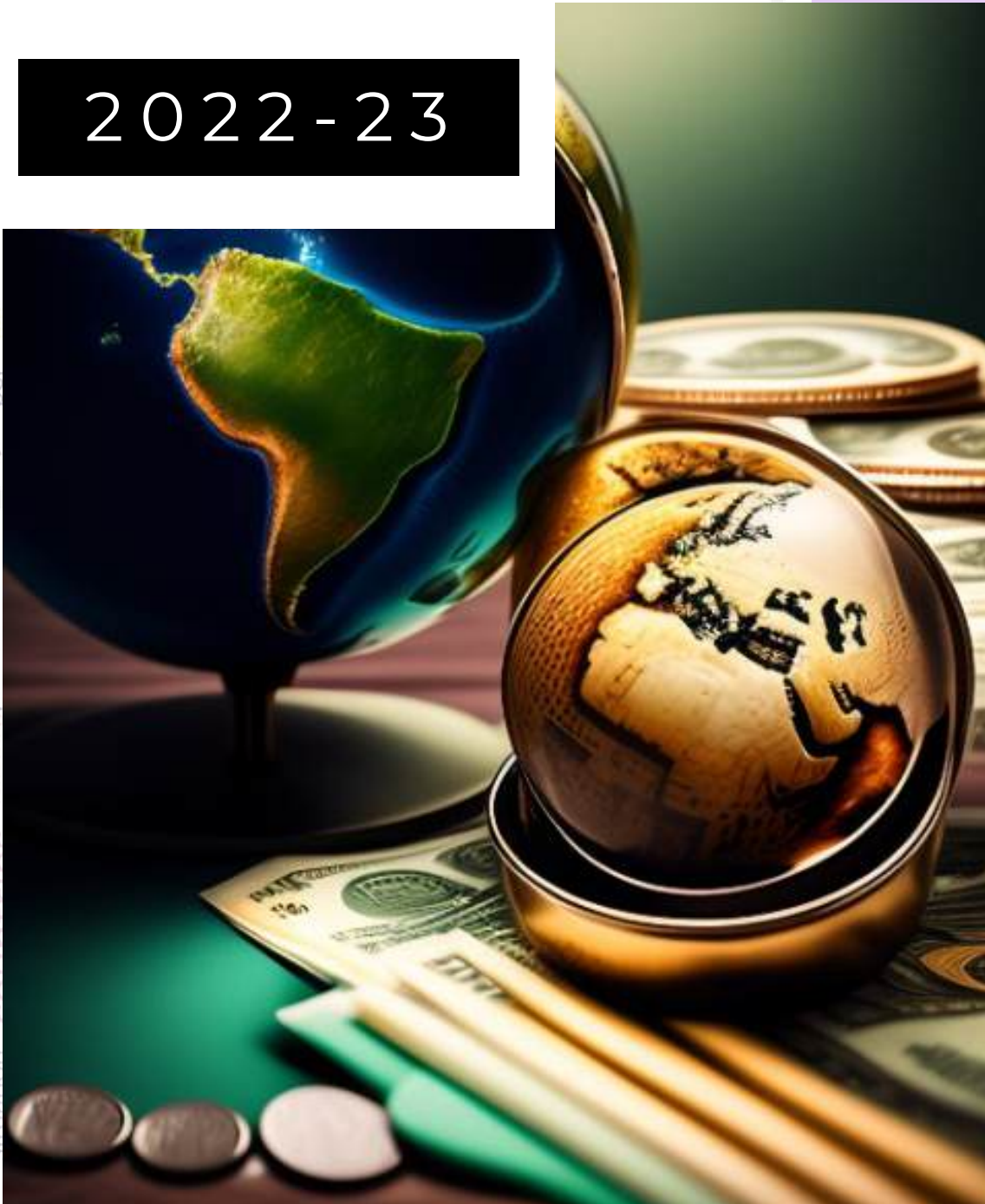




SHRI RAM CONSULTING AND RESEARCH CENTRE

आलेख

2022-23



THE SHRI RAM RESEARCH JOURNAL, SRCC

MESSAGE FROM THE PRINCIPAL



Prof. Simrit Kaur

I am immensely proud to be a part of SRCC, to witness the incredible growth and achievements of our students. I commend our college societies for their invaluable role in shaping our students. Through their diverse activities, these societies contribute immensely to the holistic development of our students, fostering their talents and nurturing their potential.

I take immense pride in acknowledging the exceptional accomplishments of Shri Ram Consulting and Research Centre (SRCRC), an extraordinary initiative spearheaded by a dedicated group of students under the esteemed Shri Ram Centre for Personal Growth, SRCC inaugurated by UGC. Under the guidance of Mr. H.N Tiwari the centre has thrived a long way to establish itself as some of the most prestigious societies of SRCC, SRCRC has emerged as a beacon of excellence, engaging in consulting projects with prestigious organizations such as Tata's, Patanjali, HDFC, Niti Aayog, World Bank, Nigeria Embassy, and the Ministry of Finance. These projects serve as a conduit for real-life practical knowledge, showcasing the center's profound acumen. Moreover, the annual fest "Escapade" further highlights the centre's commitment to holistic growth, featuring national-level competitions and inspiring speaker sessions by esteemed personalities. SRCRC stands as a testament to the unparalleled excellence it embodies.

It gives me immense pleasure to extend my heartfelt congratulations to the entire team behind the splendid release of the first edition of Aalekh. This remarkable journal showcases the astute research and thought-provoking insights of our brilliant students across diverse disciplines such as business, commerce, consulting, finance, economics, and geopolitics. I applaud the team for their exceptional efforts, and I extend my best wishes for the journal's continued success in the years to come.

MESSAGE FROM THE TEACHER-IN-CHARGE



Dr. HN Tiwari

Dear Readers,

It is with great pleasure and immense pride that I write in the opening pages of Aalekh, the research journal of Shri Ram Consulting and Research Centre. This momentous occasion marks a significant milestone in our journey toward academic excellence and scholarly pursuits. Aalekh is an embodiment of our collective commitment to fostering a culture of research, innovation, and intellectual growth within our institution. It is a platform where ideas are nurtured, knowledge is shared, and the transformative power of research is unleashed. This journal serves as a bridge between academia and the world, a gateway through which we can contribute to the advancement of our respective fields and society as a whole.

The research presented in Aalekh encompasses a wide range of disciplines, reflecting the interdisciplinary nature of our institution and the diverse expertise of our researchers. I would like to express my heartfelt appreciation to the authors, whose exceptional research and intellectual contributions have made this inaugural edition of Aalekh possible. Their passion, rigor, and dedication have resulted in a collection of thought-provoking and innovative articles that will undoubtedly shape the intellectual discourse in their respective fields. I would also like to extend my gratitude to the editorial board, whose unwavering commitment to excellence has ensured the high quality of the articles presented in this journal. Their meticulous attention to detail, thorough reviews, and insightful feedback have been instrumental in maintaining the integrity and scholarly merit of Aalekh. To our esteemed readers, I invite you to immerse yourselves in the wealth of knowledge contained within these pages. Engage with the research presented here, question assumptions, and let these articles spark your own intellectual curiosity.

MESSAGE FROM THE SENIOR EDITORIAL BOARD



Harsh Mittal

In the realm of academic pursuit, where the thirst for knowledge is unyielding, Aalekh has arisen as a beacon of brilliance. It is with immense pride and admiration that I commend the memory and hard work poured into this research journal. I extend my gratitude to all contributors, who have skillfully presented rational analyses, causing a ripple effect of thought-provoking ideas. As we embark on this inaugural voyage, I envisage a future filled with more editions, each refining the journal's quality and content. Aalekh is a treasure close to my heart, and I hope it resonates profoundly with its intended audience. Let this journal continue to flourish and inspire, leaving an indelible mark in the realm of academia and beyond. May the pursuit of knowledge never wane, and may Aalekh stand tall as a testament to dedication and excellence.



Kalpa Garg

Aalekh began as an endeavour to promote impact-based research and ideas. We fundamentally believe that conscientious research, conducted at any level, holds the potential to create positive change in the world. Our journal serves as an amalgamation of multi-disciplinary ideas, intending to empower changemakers across all domains in catalyzing the change they aspire to bring about. As you read through this journal and consume knowledge, you will encounter a diverse array of opinions, ranging from those of distinguished academics to the equally determined undergraduate students who embark on their journeys in this field. To all the contributors, I extend my sincere gratitude for entrusting us with your valuable work and being an integral part of our vision. To all the readers, we look forward to your continued involvement and feedback.

MESSAGE FROM THE SENIOR EDITORIAL BOARD



Rahul Soni

I am delighted to announce the launch of this research journal! It is a momentous occasion that fills my heart with immense happiness and pride. This journal holds a special place in my heart, as it represents the culmination of tireless efforts and unwavering dedication from my incredible team. Their commitment to excellence and their passion for promoting meaningful research have been instrumental in bringing this journal to fruition. I would also like to extend my warmest gratitude to all the PhD scholars, professors, and researchers who contributed their invaluable work to this journal. Your expertise and insights have enriched the content and elevated the scholarly standards of this publication. As we embark on this new venture, I am filled with excitement for the future. I am confident that this journal will serve as a platform for groundbreaking research and a catalyst for positive change in the academic community.



Dana Zain

Aalekh was born out of our passion for advancing knowledge and promoting scholarly discourse. Our vision for Aalekh is not merely to disseminate research but to inspire and provoke transformative ideas that have the power to shape the world for the better. This journal serves as a platform for the exchange of novel concepts, innovative methodologies, and critical insights, fostering a vibrant scholarly community. With the unwavering dedication of our team and the invaluable contributions from scholars, we embark on a journey to explore the realm of economics, finance, and beyond. We invite you all to join us and eagerly anticipate your valuable feedback. Let Aalekh be a beacon of knowledge, encouraging exploration, curiosity, and collaboration in the pursuit of wisdom.

CONTENTS

1.	HOW DO REPRESENTATIONS CONSTRUCT PEOPLE, PLACES AND IDENTITIES? <i>By Rakshith Shetty</i>	1
2.	DECODING THE EU CARBON TAX: A GREEN DEAL OR A TAXING TALE ? <i>By Siddharth Sachdeva</i>	6
3.	THE ERA OF POLITICAL TRIBALISM <i>By Yuvraj Chaudhary</i>	11
4.	THE BUSINESS OF TRACKING SPACE DEBRIS <i>By Harsh Mittal</i>	15
5.	IMPACT OF ECONOMIC GLOBALIZATION ON STATE SOVEREIGNTY: A PERSPECTIVE FROM INDIA <i>By Ujjawal Gaur</i>	20
6.	THE DECENTRALIZATION PROBLEM WITHIN THE INDIAN DEMOCRACY <i>By Harsh Thakker</i>	23
7.	CONSUMER'S PERSPECTIVE ON SUSTAINABILITY IN FASHION INDUSTRY <i>By Pradeep Kumar</i>	26
8.	GROWTH, DEVELOPMENT, AND THE INDIAN ECONOMY: A HOLISTIC PERSPECTIVE <i>By Adams Jimmy George</i>	35
9.	POSSIBLE IMPACT OF A FREE TRADE AGREEMENT BETWEEN GULF COOPERATION COUNCIL AND INDIA <i>By Dr. Badri Narayanan Gopalakrishnan and Vishnu Das Gupta</i>	39
10.	THE FUTURE IS BLUE- HARNESSING THE POWER OF BLUE ECONOMY OF INDIA <i>By Aakriti Vinayak</i>	66
11.	ESG AND IMPACT OF COVID-19 <i>By Aditi Pathak, Poorvi Gupta, Suhani Bansal</i>	69
12.	ESG AND ITS IMPACT ON FINANCIAL PERFORMANCE <i>By Tanveer Rahman, Medhavi Gupta, Sneha Singhal</i>	82
13.	STATE OF ECONOMICS: A SKETCH <i>By Annabhujula J C Bose</i>	93

CONTENTS

14.	INDIA'S GEOPOLITICAL ROLE IN THE CENTURY: CHALLENGES AND OPPORTUNITIES <i>By Amal Chandra, Hima T. Sam</i>	100
15.	UNDERSTANDING JAPAN'S DRIFT IN DEFENSE OUTLOOK <i>By Umang Bhansali</i>	106
16.	DOLLAR RUPEE EQUALISATION <i>By Tanvi Maharana and Srishti Singh</i>	112
17.	REVOLUTIONIZING MARKET APPROACH THROUGH INFORMATION TECHNOLOGY <i>By Abhiraj Gawade, Adarsh Patil, Navneet Kulkarni</i>	125
18.	INVESTING FOR A BETTER FUTURE: UNLEASHING THE POWER OF SUSTAINABLE FINANCE <i>By Harsh Samvedi</i>	141
19.	MACRO-ECONOMIC AND FINANCIAL IMPLICATIONS OF DECARBONIZATION: PAVING THE WAY FOR A SUSTAINABLE FUTURE <i>By Dr. Badri Narayanan Gopalakrishnan & Adems Jimmy George</i>	148
20.	THE RIPPLE EFFECT OF THE RUSSIAN-UKRAINE CRISIS ON FOOD SECURITY AND GLOBAL SUPPLY CHAIN <i>By Stuti Sharma</i>	156
21.	FUTURE OF GOVERNMENTS E-COMMERCE PLATFORM (ONDC) <i>By Kushagra Baranwal</i>	161
22.	HOW AI POWERED CHATBOTS WILL AFFECT SEARCH BUSINESS <i>By Shiva Yadav</i>	166
23.	IMPACT OF COUNTERFEIT PRODUCTS ON CONSUMER PURCHASING BEHAVIOUR <i>By Aleya Sinha and Udit Gupta</i>	193
24.	TURBULENCE IN THE SKIES: A CLOSER LOOK AT THE INDIAN AVIATION INDUSTRY'S STRUGGLES <i>By Gopal Saraf & Tanmay Sood</i>	204
25.	THE INFLUENCE OF CONSUMER BEHAVIOR AND PREFERENCES ON PRODUCT PRICING AND MARKET SEGMENTATION: A CASE STUDY OF SMES OF INDIA <i>By Supradeep Dutta and Harsh Kumar</i>	211

HOW DO REPRESENTATIONS CONSTRUCT PEOPLE, PLACES AND IDENTITIES?

Rakshith Shetty
O.P Jindal Global University



Binyawanga Wainaina (2019) in his essay “How to Write about Africa” ridicules the occidental authors for their style of portrayal of the African continent and its populace. Chimamanda Adichie (2009) in her Ted Talk on “The Dangers of a Single Story” furthers this notion by asserting the danger of a limited, and often inaccurate representation which can have an enduring impact on a person’s identity. Piers Fotiadis (2009) in his astute dissertation submission, “The Strange Power of Maps” argues that cartographic images are not as objective as they might seem but are in-fact ‘social constructions that work politically’ (Fotiadis 2009: 1). Lastly, a brilliant article titled, “Gender, orientalism and representations of the ‘Other’ in the War on Terror” by Maryam Khalid (2011) expounds the gendered and orientalist depiction of the Islamic ‘Other’ by the Western World, post 9/11 event. In this article, with the help

of evidence from Wainaina (2019), Adichie (2009), Fotiadis (2009) and Khalid (2011), I argue that it is possible for visual, literary, and cartographic representations to build, sustain, and reinforce narratives that result in shared societal understandings and have a real effect on people, places, and identities.

Even if representations do not always correspond to reality, they serve to define the nature of the represented, resulting in the construction of a tradition that consistently influences all subsequent learning and knowledge about the represented. Adichie (2009) attributes the creation of a tradition that portrays the African continent negatively in the Western Literature. She cites John Locke, a London merchant, who refers to the Black Africans as “beasts who have no houses”

and “people without heads, having their mouth and eyes in their breasts”. These types of writings mark the beginning of a Western tradition of telling African stories, which is sadly still going on today. Even the Nobel Prize Winner for Literature, Rudyard Kipling wrote about the African people as “half devil, half child”. Representations not only define the nature of people, but also have an impact on geography. Fotiadis (2009) does a brilliant job of revealing how maps have lost their innocence and are victims of human construction, where he cites John Short who notes, ‘We live in a spherical world where there is no obvious top or bottom’, yet for decades we have divided countries in Global North and Global South, further attaching meanings to the categories. India and Somalia rarely have anything in common, yet both fall under the larger category of the ‘Global South’. This showcases the impact of constructed representation that have been borrowed by the occidental writers. This construction of a tradition and its defining nature can be easily extended to gender and gendered identities. Khalid (2011) believes that gender and gendered identities are socially constructed, defining what constitutes “woman” and “man,” rather than being “natural” or “pre-given.” This results into the construction of ‘people’ (for example, barbaric Afghan men, benevolent Western men, oppressed Muslim women) so that men and women fit into the stories they have been told about, which works more like self-fulfilling myth. Therefore, representations are accountable for creating a tradition that shapes all subsequently acquired information and understanding of the represented. The deliberate exclusion of people's voices and experiences obliterated their entire identity. In explaining how the American ‘War on Terror’ narrative omitted certain voices and experiences of people, Khalid (2011) reveals how despite clearly experiencing human rights violations, women in Iraq actively participated in

society and were not the silent, defenceless victims that were commonly believed. Furthermore, the Americans completely disregarded various powerful women organisations at play in the region who were seeking for their rights and fighting their own battle. Khalid (2011) points out how the Revolutionary Association of the Women of Afghanistan (RAWA), a longstanding resistance movement, was briefly courted by the US administration only to be shied away from, once the organisation began requesting aid rather than intervention. The voice and experience of the organisation was only entertained until it synced with the dominant discourse of the ‘American War on Terror’. Deliberate omission of voices and experiences are not only limited to the *Muslim* world but also applied in the US too. In a bid to justify US imperialism in the Arab world, the rescue mission of Jessica Lynch, which displayed her willingness to fight to the death against the Iraqi forces was repeatedly used by the US administration and the mainstream medias. But Khalid (2011) points out the exclusion of Shoshana Johnson's story, a Panamanian born former US soldier whose story resembled with Lynch's capture the most. In explaining why Shoshana's story was omitted, Khalid (2011: 26) cites Cristina Masters who argues that ‘it had to be Lynch who was rescued, as it was the image of the white woman that was at stake here’. Shoshana's experiences were omitted because it was not serving the dominant narrative of the ‘War on Terror’. Her race and skin colour made it impossible for the US administration to create a *sense of us* among the US citizens. Khalid (2011) also highlights the strong reluctance in the mainstream media to call out USA's role in creating favourable conditions for the terror outfits in the Middle East. Here the mainstream media, the fourth pillar of democracy, played a vital role in omitting stories that did not resonate with the American ‘War on Terror’ discourse. Even though representations are powerful by themselves, omissions play a crucial role in deciding who does not get to be represented. This is a consequence of

exclusion where people's identities were completely destroyed when their voices and experiences were purposefully silenced.

In contrast to revealing a pre-existing "truth" about the world, representation in the visual, cartographic, textual or any other language constructs meanings about the world. To illustrate this, we will refer Khalid (2011) who draws on three particular prominent images from the American War on Terror discourse. The first image is of the 'veiled oppressed Muslim women', which depicts the entire populace of the Muslim women as oppressed, mute and helpless victims of the barbaric Afghan men. While conveniently ignoring the longstanding resistance movement in the form of the Revolutionary Association of the Women of Afghanistan (RAWA). The second source Khalid (2011) draws upon are the images of US soldier Jessica Lynch's 'rescue' from Iraqi forces, which served to amplify the orientalist image of barbaric and ruthless Muslim men posing an uncontrollable threat to (white) women. The third image is of the prisoner abuse at Abu Gharib prison, where the US men and women are involved in disturbing activities which aim to feminize Iraqi men by torturing them mentally and sexually. Similar to visual form of representations, cartographic representations have had an equal share of constructing meanings. Fotiadis (2009) while highlighting the importance of the scimitar, claims that it is a 'powerful symbol that conveys images of pre-modern violence and primitiveness to the viewer'. He mentions that it is surprising that the use of medium-range missiles is shown for Syria, Iran, Iraq, and Egypt, but nothing is said about US missiles in Turkey, which are omitted from the map. While this does not reflect the reality on ground, it creates meanings about the countries represented as carriers of deadly weapons. Another instance of similar cartographic representation is when The Times

represented Serbian massacres at the end of the 1990s with "emotive skull and crossbones," while NATO collateral damage was represented by "ambiguous yellow crosses.". Lastly, Wainaina (2019) in his essay reveals how the western literature constructs meaning about the African continent. In his essay, 'How to Write about Africa', Wainaina (2019) has mockingly discussed the taboo topics that he warns his readers against using when writing about the continent. These include everyday domestic scenes, love between Africans, references to African writers or intellectuals, mention of school-going children who are not suffering from yaws or Ebola fever, or female genital mutilation. Instead, he instructs his readers to concentrate on writing about "The Starving African" and the strange foods that the Africans prefer to eat, including monkey brain. These representations create meanings instead of depicting the truth, consequence of which was even faced by Adichie (2009) when her American roommate was shocked when Adichie spoke in fluent English, and when her professor told that her novel was not 'authentically African' since her characters were 'driving cars and not starving.' This is how visual, cartographic, and textual forms of representation generate meanings about the world as opposed to disclosing a pre-existing "truth" about it.

Visual, Linguistic and Cartographic representations in literature can promote unity but can also invoke ideas of dissimilarity. Wainaina (2019) briefs about the 'taboo subjects' that the western authors deliberately avoid, highlighting differences among them and the Africans. This kind of selective omission in the literature generates a sense of otherness. Adichie (2009) furthers this notion by narrating how she herself was a victim of this constructed otherness. Adichie's American roommate was shocked when Adichie spoke in fluent English. Her professor said that

her novel was not 'authentically African' since her characters were 'driving cars and not starving.' These kinds of representations 'emphasizes how we are different rather than how we are similar,' Adichie argues. Representation in the form of colour can have a long-term impact on countries and their populations. Fotiadis (2009: 34) contends that 'the use of colour in the map also promotes the idea of unity'. For example, 'NATO in the world' map, published by NATO portrays the member countries in blue and the communist bloc in red. In a western cultural code, blue is widely associated with calm, neutrality, and peace, whereas the colour red symbolizes danger, anger, and blood. This kind of representation subconsciously creates unity among the countries painted with the same colour and dissociates them with the other party. Even today, we can observe colour playing its latent role in geopolitics.

Khalid (2011) depicts how representations construct a hierarchy of communities, promoting unity and dissimilarity at the same time. The gendered orientalist dimension puts the US women above the Muslim women in hierarchy, but when we add the racial dimension to it, then the black US women are ranked lower than white US women, despite both being Americans. Thus, literature's visual, linguistic, and cartographic representations can promote unity while also instilling ideas of dissimilarity.

Representation or a lack of it has always had an effect on its subjects, both latent and manifest. However, the works of Wainaina (2019), Adichie (2009), Fotiadis (2009), and Khalid (2011) assisted their readers in becoming aware of its latent meaning, which was not explicit before.

REFERENCES

Chimamanda Ngozi Adichie: The Danger of a Single Story | TED. [www.youtube.com, https://www.youtube.com/watch?v=D9Ihs241zeg](https://www.youtube.com/watch?v=D9Ihs241zeg). Accessed 22 Dec. 2022.

Chimamanda Ngozi Adichie: The Danger of a Single Story | TED. [www.youtube.com, https://www.youtube.com/watch?v=D9Ihs241zeg](https://www.youtube.com/watch?v=D9Ihs241zeg). Accessed 22 Dec. 2022.

Chimamanda Ngozi Adichie: The Danger of a Single Story | TED. [www.youtube.com, https://www.youtube.com/watch?v=D9Ihs241zeg](https://www.youtube.com/watch?v=D9Ihs241zeg). Accessed 22 Dec. 2022.

Short, The World Through Maps, p. 14.

Judith Squires and Jutta Weldes, 'Beyond Being Marginal: Gender and International Relations in Britain', British Journal of Politics and International Relations 9 (2007): 185 – 203, at 186.

Cristina Masters, 'Femina Sacra: The "War on/of Terror", Women and the Feminine', Security Dialogue 40 (2009): 29 – 49, at 37.

NATO, 'NATO in the World', <http://www.nato.int/education/images/posters/otan-07.pdf> [accessed 14 August 2009].

The Times, April 29 1999, p. 18, referenced in Vujakovic, „Mapping the War Zone“, p. 195.

Adichie (2009)

Fotiadis (2009: 36)

DECODING THE EU CARBON TAX: A GREEN DEAL OR A TAXING TALE ?

Siddharth Sachdeva
Shri Ram College of Commerce



On 18th April 2023, the lawmakers of the European Union (EU), following extensive discussions, approved the world's first carbon import tax named as Carbon Border Adjustment Mechanism (CBAM) with the twin objective to maintain the competitiveness of European producers relative to foreign producers and to tackle "carbon leakage" which is a situation when companies relocate to places or regions with cheaper pollution costs and more lenient climatic regulations. Such a move, at first blush, looks like a positive step as it assists in taxing the carbon polluters however, as the adage goes, the devil lies in the details, so it becomes imperative to probe deeper into it and analyse the same along with the repercussions on the developing countries.

Let us first comprehend the fact that this mechanism at hand is a key aspect of the EU's broader 'Fit for 55' package whose goal is to cut

55% of net greenhouse gas emissions in the EU by 2030. In the year 2005, the EU put into effect the Emission Trading System (ETS) which is a mechanism that states to price carbon emissions. The ETS employs a cap-and-trade system, imposing a cap on the volume of emissions that firms are allowed to release into the atmosphere. Furthermore, the price of carbon is determined by the trading of carbon allowances between firms that have low or high carbon intensity. But, in order to safeguard the market position of European firms that have substantial carbon footprints, they are endowed with a complementary allotment of ETS allowances.

CBAM is designed in such a way that it works in tandem with the ETS by placing a carbon tax on certain imports into the EU from third countries such as Russia, China, the US, and India, where the carbon tax is not levied at an EU-approved level.

Developing countries have said that the allocation of ETS allowances to high carbon emitting European firms only serves to protect their market position, rather than truly incentivizing emission reductions. This is not a mechanism that can be touted as effective or just. It is expected to come into effect in 2026, with a transition period starting in July 2023, during which importers into the EU will be required to report on all emission-related information for goods brought in. Its purview shall initially span over certain products in sectors with high carbon intensity, such as iron and steel, cement, and electricity produced using coal. Plastics and chemicals will also be included by 2026, with all sectors covered by the EU emissions trading system expected to be covered by 2030. The aim of the mechanism is to cut emissions by 55% by 2030 compared to 1990 levels, as stipulated by European climate law.

This perspective needs to be contested with the realisation that while the CBAM's intention seems noble, it has been criticised for imposing an undue financial burden on countries such as India, China, and Mozambique, which did not contribute significantly to climate change but will face the carbon charge. According to an article in the World Economic Forum, Mozambique's GDP could be impacted by 1.5% on aluminum exports alone if the CBAM is implemented. The CBAM charge could range from 20% to 35%, which discernibly surpasses the EU's average tariff of 2.2% imposed on imported manufactured products in concurrence with climate law.

An additional crucial facet pertaining to the matter, that has been expressed by developing countries, is the contravention of free trade agreements as delineated by the World Trade Organization. It remains to be seen if the CBAM is consistent with International Trade law and World Trade

Organization (WTO) rules, as it is likely to face legal challenges at the WTO. The EU claims that it is compliant with WTO rules and International climate law, and similar mechanisms are already in place in some regions around the world, such as the state of California in the United States, Canada, and Japan. However, it has also committed to exploring alternative methods that are compliant with the regulations of the World Trade Organisation (WTO) to prevent carbon leakage on exports, given the possible violation of WTO rules against subsidies by the inclusion of export rebates. Ironically, the EU has opted for a tariff, which is the very practice that the WTO was principally established to eliminate. This decision has two main consequences for the EU. First, it may influence European manufacturers' investment decisions by creating uncertainty that they cannot overcome, leading them to shift carbon-intensive production outside the EU to countries without a carbon tax or with more favorable subsidies. This decline in investment could have a long-term adverse impact on economic growth.

The second consequence is on the EU budget. The agreement makes CBAM administration centralized at the EU level. As EU Budget Commissioner Johannes Hahn warned in November, "the share of CBAM revenues earmarked for the EU budget will need to be increased, as compared with the 75 percent proposed by the European Commission based on a decentralized governance model." Regarding the US, CBAM poses both economic perils and prospects. In the absence of a federal carbon tax by 2026, US exporters to the EU may be subject to the EU's import tariff. However, U.S. firms could be exempted if the EU decides that the U.S. has a domestic carbon price akin to the ETS price. Nonetheless, this decision may not be solely based on carbon prices

but also on broader political consensus.

The CBAM has also put Indian exporters in a precarious position, as 15% of India's total exports go to the EU, with steel and aluminum being the most vulnerable sectors. Indian steel plants' carbon emission intensity ranges from 2.3 to 2.8 tons for crude steel produced, compared to a global average of 1.8, putting Indian exporters at a disadvantage. Additionally, the CBAM could affect India's free trade agreements (FTAs), causing significant trouble on the FTA front.

The purported benefits of the CBAM introduced also seem to be dubious, as it acts as a protectionist measure that will adversely impact developing countries. The EU's insistence on curbing emissions from imports from developing countries fails to acknowledge the fact that developed countries have a far more substantial carbon footprint. The EU has a chequered history when it comes to carbon emissions. This can be contextualized by the fact that it was responsible for one of the highest shares of global carbon emissions, fueled by its reliance on coal and other fossil fuels.

Whilst the European Union (EU) has exhibited some notable advancements in mitigating its carbon footprint during recent times, it remains indisputable that numerous member states within the EU persistently rely upon industries that bear a substantial carbon intensity. This assertion is further corroborated by an academic research article entitled "The Relationship Between Economic Growth and CO₂ Emissions in EU Countries: A Cointegration Analysis," which undertook an examination of the correlation between economic growth and CO₂ emissions across the 27 EU member states within a panel framework, spanning from 2000 to 2017. The study's noteworthy findings unequivocally proclaim that, on an average basis, a mere 1% alteration in gross domestic product (GDP)

engenders a consequential 0.072 alteration in CO₂ emissions. These outcomes lucidly underscore the undeniable existence of a discernible and rather momentous relationship between economic growth and CO₂ emissions.

The tax will escalate the cost of production for these industries, leading to a decline in output and employment. In addition, the increase in production costs may make these countries less competitive in the global market, ushering forth a slump in exports and a widening trade deficit. The brunt of this impact would be endured more acutely by those nations that heavily rely on fossil fuels for their energy needs to channel their growth. However, the impact of the EU carbon tax on developed countries is not uniform. Some industries in developed countries, such as steel and cement, are also carbon-intensive and will be negatively affected by the tax. These industries could confront amplified competition from countries with lower carbon taxes or no carbon taxes at all.

However, the European Union (EU) maintains the perspective that the integration of third countries' national carbon pricing systems with the EU Emissions Trading System (ETS) would negate the necessity for third-country exporters to fulfill CBAM payments. It is important to highlight that the implementation of a border adjustment mechanism encompasses two distinct facets. Firstly, it entails the imposition of tariffs on imported goods, and secondly, it involves the establishment of a crediting mechanism for exported commodities. In the present scenario, the EU import fee functions to ensure the competitiveness of European products within the EU market, whereas an export rebate becomes imperative to maintain the competitiveness of European-produced goods in markets beyond the EU. Regrettably, the EU has not yet granted approval for a comprehensive

border adjustment mechanism encompassing both import fees and export rebates. Instead, it has endorsed a carbon tariff that does not provide export rebates for European producers.

Another issue that may give rise to a potential challenge is in the form of trade disputes among nations. Developing countries might perceive the tax as an endeavor by developed nations to enforce their environmental regulations upon them, thereby potentially instigating retaliatory actions such as imposing tariffs on EU exports. This has the potential to negatively impact trade relations between the EU and developing nations, as well as cause a decline

in global trade and hinder economic growth. In summary, while the notion of implementing a carbon tax cannot be categorically deemed entirely erroneous, it does possess certain advantages; nevertheless, its potential consequences on developing nations necessitate careful deliberation. Moreover, instead of effectively addressing the underlying causes of climate change, developed countries such as the European Union are placing an inequitable load on developing nations, which already confront challenges pertaining to poverty, inequality, and societal advancement. This approach not only lacks fairness but also hampers the effectiveness of efforts aimed at combating climate change.

REFERENCES

<https://www.americanprogress.org/article/european-unions-proposed-trade-tax-carbon-means-united-states/>

<https://edition.cnn.com/2022/12/19/energy/eu-carbon-border-tax/index.html>

<https://theprint.in/theprint-essential/how-eus-proposed-carbon-border-tax-will-work-why-india-is-among-the-nations-opposing-it/703214/>

<https://www.taxnotes.com/tax-notes-international/corporate-taxation/eu-budget-commissioner-warns-meps-about-cbam-own-resources/2022/11/28/7fdr0>

<https://taxfoundation.org/tax-basics/tariffs/>

<https://www.euractiv.com/section/energy-environment/news/us-could-dodge-european-carbon-border-levy-eus-timmermans-says/>

<https://www.frontiersin.org/articles/10.3389/fenvs.2022.934885/full#:~:text=Estimation%20of%20Ocointegrating%20relationship%20through,the%20profile%20of%20EU%20countries.>

<https://carnegieeurope.eu/2023/05/09/political-economy-perspective-on-eu-s-carbon-border-tax-pub-89706>

<https://www.euronews.com/2019/12/05/eu-still-among-top-3-world-co2-emitters-new-data-shows>

<https://www.consilium.europa.eu/en/press/press-releases/2023/04/25/fit-for-55-council-adopts-key-pieces-of-legislation-delivering-on-2030-climate-targets/#:~:text=Presented%20by%20the%20European%20Commission,achieve%20climate%20neutrality%20in%202050.>

<https://taxfoundation.org/cbam-eu-carbon-border-tax/>

<https://www.reuters.com/business/sustainable-business/china-says-ecs-carbon-border-tax-is-expanding-climate-issues-trade-2021-07-26/>

<https://www.wsj.com/articles/worlds-first-carbon-tax-approved-by-eu-lawmakers-752ed823>

<https://www.livemint.com/industry/energy/eu-says-it-s-ready-to-work-with-india-on-carbon-tax-11679423674958.html>

<https://www.thehindu.com/news/international/explained-why-is-the-eus-carbon-border-tax-worrying-other-countries-including-india/article66804351.ece>

THE ERA OF POLITICAL TRIBALISM

Yuvraj Chaudhary
School of Business Management, NMIMS



In all my years of engaging in discussions about politics, economics, social issues, and basically anything and everything trending on mainstream or social media, the polarisation of opinion solely driven by which side a person “supports” has never been more toxic.

I have even seen die-hard sports fans come to a consensus more quicker and in a more civilised manner. Trust me, as an Arsenal fan, I have gotten my fair share of ridicule and had no other option but to accept the banter because, more often than not, it’s true.

I do understand that there is an innate human inclination to be tribal because that is embedded in our core DNA. We are naturally more inclined to be free of social boundaries and limitations and I’m not simply sprinkling salt in the sea, we have scientific facts to back this statement.

Once we do identify with a certain subgroup of our species, there is a natural urge to defend and act with bias. From personal experiences, all the way through school, we were divided into sub-groups and made to compete with each other. Be it at the grade level where we had to compete for the best-decorated classroom board or which class performed best in the assembly. To broaden it, the entire school was divided into houses and to win the annual house cup, the rivalry was second to none. Although these affairs did inculcate team spirit, the fallout between these groups couldn’t go unnoticed either. The unfettered allegiance to one’s group was problematic, to say the least.

In a recent study highlighted by Amy Chua, children between the ages of 4 and 8 were randomly assigned to either the red group or the blue group. They were given

T-shirts to match the groups they were inducted into. The children were now placed in front of the computer and shown edited images of children (not part of the study) wearing blue and red T-shirts. Stories were told about the children in the pictures. Now, this is where things got interesting. After the images were shown, the reactions of the children were gathered. The results indicated as follows:

- They liked the kids wearing their T-shirts better and wanted to allocate resources preferably to the kids on their team along with displaying a strong unconscious bias towards their own group members.
- They also displayed systematic memory distortion i.e. inclined to recollect the positive attributes of the children wearing their colour and negative aspects of the children wearing the other colour.
- The traits exhibited in young children can only give us a glimpse into how tribalism is deeply rooted in all of us.

Now, not all forms of tribalism are bad. Sports are tribal. Families tend to be very tribal in nature. The problem arises when tribalism enters politics. Allow me to explain.

There is a shift of conversation from discourse about policies and governance to a blanket stereotyping of political identity based on a person's affinity to a political party. Political parties and figures attaining celebrity to deity-esq. status amongst its followers. For all intents and purposes, your affiliation has become a cult.

Of course, I'm not going to put myself on a moral pedestal and claim to never have been part of this system. After a long overdue introspection, I have come to a realisation that the purpose with which I engaged in these was never to get a better fundamental understanding of what the other party was

overwhelming urge to prove that I was right. That I had chosen the right side. Even when faced with abundant facts to the contrary, I felt that caving in would somehow be a loss for the side I'm 'representing'. Personally, I feel this is a quintessential issue plaguing our society. The inability to empathise is accompanied with stubbornness.

Tribalism in politics skews one's perspective enabling them to only see through the narrow prism of their group's identity. Facts stop mattering. The primary objective is to defend one's side irrespective of the outcome.

In the era of constant virtue signalling, a person who votes for the opposing party is seen as immoral and evil which is a dangerous precedent to set. It's become a boxing match, where the only aim is to take the other side down.

In my mind, there are a few reasons why this has accelerated at such a parabolic rate. The primary source is the fourth estate, i.e the media. The division of our primary sources of information along political lines. Unbiased reporting and ethical journalistic standards are seemingly a thing of the past. It appears as though every news channel is pandering to a doomsday scenario if the opposition continues unchained.

The only outcome of this is fear, something which keeps the audiences hooked and clearly, that is the motive. You can now tell a person's political thoughts by the news channels they watch. Prime-time debates which used to be a source of healthy discussions, now resemble poorly scripted reality TV shows with ample brouhaha on display. And this in turn is reflected in the viewers.

Rapid globalisation and changing demographics in countries are other reasons. This can be seen across Europe and the USA, where issues regarding

immigrants are always on the front burner. Having deeply dived into both sides of the spectrum I can see valid points across the board.

However, just like the parties of the countries that these issues belong to, there seems to be a willing inability to have a balanced discussion about it without one side accusing the other of being xenophobic or unpatriotic.

The abundance of misinformation perpetuated through social media doesn't do any favours either. That and the undemocratic, opaque functioning of social media platforms (which in this day and age are at par with being a fundamental right) give rise to conspiracy theories that do a fantastic job of adding fuel to fire.

How to move forward?

The need of the hour is to rise above identity politics and a conscious pan-political movement to stop being segregated into a political vote bank. This is imperative

in evolving an inclusive and collective consciousness. Here I'd like to reiterate that, developing groups/segments is not the devil. Groups do provide comfort and solidarity to their constituents. But hard lining ideology and leaving them bereft of inclusivity is, in its extreme form, a breakdown of civil society, embers of which could be seen during protests in various countries.

Another alleged phenomenon is the division in academic circles to accept and promote what is deemed politically correct and acceptable. The repercussions of this shouldn't need explanations. Only then can we see this permeate through the rest of the society. In my eyes, this will happen with the top-down approach, where we hold the media, politicians, and academics to higher standards of moralistic and ethical values. Of course, the entire burden doesn't lie on them, it's within each and every one of us to be more empathetic and respect one another.

REFERENCES

Political Tribes: Group Instinct and the Fate of Nations (Penguin Press, 2018)

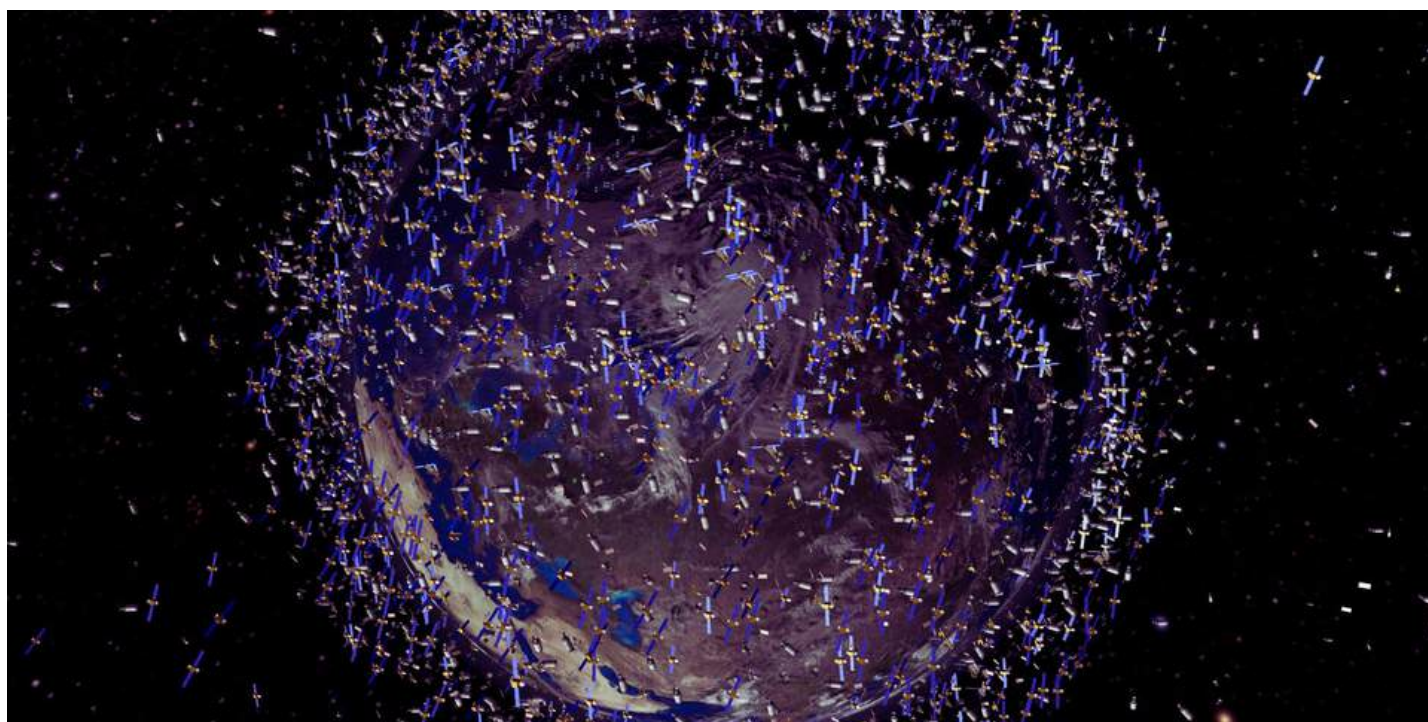
*Tribalism: The evolutionary origins of fear politics by Stevan E. Hobfall
(Palgrave Macmillan; 1st ed. 2018 edition (13 August 2018))*

Tribal world, Group identity by Amy Chua

THE BUSINESS OF TRACKING SPACE DEBRIS

Harsh Mittal

Shri Ram College of Commerce, University of Delhi



A spacecraft moving at orbital speeds can be obliterated by a space debris particle the size of a hockey ball if it has enough energy. So it makes sense to watch orbiting junk in order to divert spacecraft away from danger, introducing the world to the subject of space debris and its monitoring.

In 2021, the market for tracking and removing space debris was estimated to be worth USD 866.4 million. The market is anticipated to increase by USD 1,527.7 million by 2029, from USD 942.3 million in 2022, representing a CAGR of 7.15%. The pandemic has been unexpected and shocking on a worldwide scale, and demand for space debris monitoring and clearance has been lower than expected globally compared to pre-pandemic levels.

Understanding the Need for Janitors

The launch of new satellites into Earth's orbit has grown significantly more dangerous in recent years due to space debris. The commercial and defensive participants in the market now place a high priority on the affordability and safety of new satellites and other space exploration initiatives. ClearSpace-1 will be the first space mission to remove a piece of junk from the Earth's orbit, according to the European Space Agency. In 2025, this mission will be carried out

Space traffic is increasing as a result of Jeff Bezos and Richard Branson entering suborbital space, three American missions to the International Space Station (ISS) in July, and SpaceX's recent launch of 88 satellites into orbit. And this is only the start of a hike in governmental and commercial space activity, rocketing into suborbital space, which lead to surging

demand for space debris monitoring and clearance has been lower than expected globally compared to pre-pandemic levels

A number of more flights to the ISS and satellite launches occurred in August 2021. The Biden administration also entered into a contract with the European Space Agency to utilize more satellites for earth science research that addresses climate change. The government and the space sector have made significant investments to support this rising space travel, which has a variety of uses. But the enormous amount of risk associated with these investments will grow.

But the enormous amount of space debris that is already circling the Earth will put these expenditures in jeopardy on an increasing basis. Although there is plenty of space for flight, NASA believes that there are already 23,000 objects larger than 10 centimeters in diameter as well as over 500,000 objects of smaller size in orbit. Even a small piece of this orbital debris, often known as space junk, can seriously harm or destroy a spacecraft or satellite if it collides with one. Numerous dead and retired satellites, pieces of spacecraft spanning decades of missions, artifacts that exploded during military tests, and other objects are among the space debris.

Individual plans and needs

In recent years, space launches have been made possible by the exponential development in demand for networks, communications, and network-based services around the world. The U.S. Federal Communication Commission (FCC) granted permission for SpaceX's Starlink program to deploy a constellation of 12000 astonishingly tiny satellites for the internet. Additionally, the business is getting ready to set up a spectrum to install a staggering 30000 satellites in the near future.

Additionally, in April 2022, NASA agreed to pay commercial companies USD 280 million to start creating near-Earth space communication services. Near-Earth space communication services are being developed and demonstrated by the firms. SpaceX, Kuiper Government Solutions, Viasat Incorporated, Inmarsat Government, SES Government Solutions, and Telesat U.S. Services are a few of the commercial businesses.

The space agency also revealed that four additional missions will launch this year, 24 Earth-science missions are now orbiting the planet, and four more missions will launch by the end of 2022. Additionally, orbital launch efforts have increased significantly over the past five years in nations like the United States, Russia, China, Japan, India, and France. There are currently 3,373 operational active satellites in Earth's orbit, though this number is expected to rise sharply over the next several years.

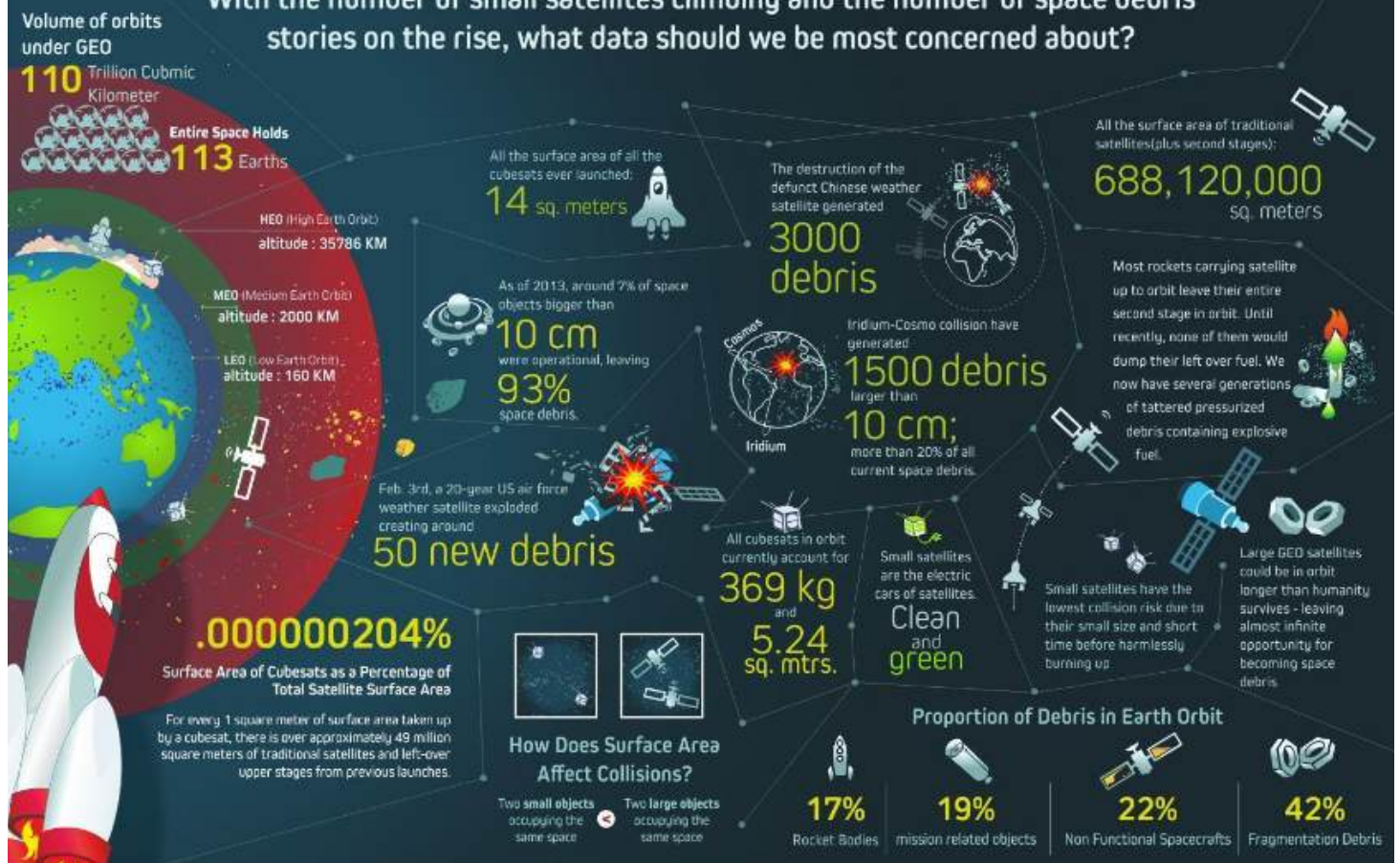
Rise and rivalry to capture stakes

Spacecraft in orbit frequently need to avoid space debris. Between 1999 and 2018, the International Space Station had to perform 25 maneuvers to prevent collisions, and three of those maneuvers involved dodging debris.

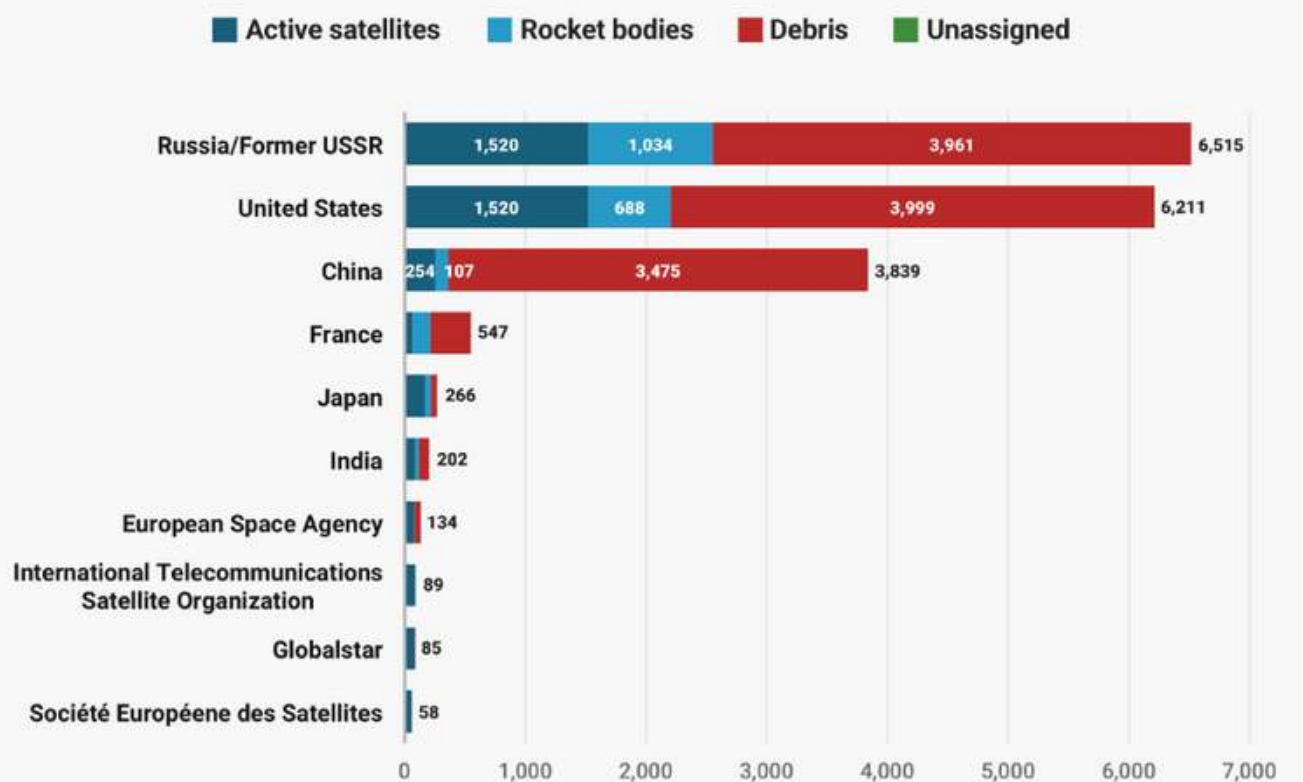
With the expansion of commercial and private spaceflight, monitoring this debris will become a significant problem. The size of the world's space economy in 2019 was roughly \$366 billion. \$123 billion of this was spent directly on satellite services, with the remaining \$271 billion going to the satellite business. U.S. and international satellite firms suffer the weight of the inability to track and remove orbital junk as the world becomes more and more dependent on

The Space Debris Problem

With the number of small satellites climbing and the number of space debris stories on the rise, what data should we be most concerned about?



COUNTRIES AND AGENCIES WITH THE MOST STUFF IN ORBIT



satellites. Services for active space debris monitoring and clearance are provided by the American startup company known as OrbitGuardians. The company analyses, monitors, and removes space trash smaller than 20 cm using technologies like computer vision, the Internet of Things (IoT), and Artificial Intelligence (AI).

In a similar vein, the Japanese start-up Astroscale offers services including Active Debris Removal (ADR) and End of Life (EOL). Phase I of the company's Commercial Removal of Debris Demonstration (CRD2) project is currently under progress. The company specializes in disassembling rocket parts that have been launched by the Japan Aerospace Exploration Agency.

Strengthening Cooperation Among Powers & Increase in Situational Awareness

It's not been limited to individual countries but several allies have been formed to cater to this growing opportunity. Space is becoming more and more recognized as a sector of tactical significance for national security in the U.S., China, Russia, and India. The utilization of space for safety, national security, and scientific objectives is eagerly anticipated by European and Asian nations. Currently, the space sector is operating in about 80 countries.

Additionally, in April 2022, Atos and OHB agreed to supply the "Space Situational Awareness Centre Expansion Stage 1" to the German Federal Armed Forces. In order to safeguard Germany's national space infrastructure, the two businesses are

assisting the German federal armed forces in developing a Space Situational Awareness (SSA) system. LeoLabs inked an agreement in May 2022. A contract between LeoLabs and the UK Space Agency (UKSA) was signed in May 2022. The UKSA will receive real-time observation data for all U.K. licensed satellites in LEO from LeoLabs' worldwide radar network as per the terms of this contract.

Therefore, it is anticipated that the increasing need for international cooperation to facilitate space travel will fuel market expansion.

Conclusion

It is difficult to dispute the fact that the number of satellites launched into space will not be lowered, as businesses and governments are undoubtedly not going to accept a setback in the face of the rising demand for satellites to support high-powered technology to serve the entire world. The response is an unequivocal "NO" to the introduction of the space tourism business. The sector will continue to expand enormously until it is going to countries that do not have any regulatory concerns regarding the number of satellites deployed into space. The only alternative that remains open is management. Things in this capitalist market won't end until there are too many players competing for the same customers and reducing each other's earnings. It is anticipated that in the near future, we will see a number of more examples that will undoubtedly make this topic a hot topic to be covered in the news channels.

REFERENCES

Space Debris Monitoring and Removal Market Growth [2029] (fortunebusinessinsights.com)

The big business of being a space janitor (axios.com)

Tracking space debris is a growing business (economist.com)

Space junk: what it is and why cleaning it up matters | World Economic Forum (weforum.org)

IMPACT OF ECONOMIC GLOBALIZATION ON STATE SOVEREIGNTY: A PERSPECTIVE FROM INDIA

Ujjawal Gaur

Founder of Ehsaas for Humanity Foundation



Introduction

The global environment has seen a substantial transformation as a result of economic globalisation, which is characterised by increased cross-border commerce, investment, and financial movements. In the context of India, this essay investigates how economic globalisation affects state sovereignty. India makes a fascinating case study to examine how economic interdependence impacts state autonomy and decision-making power because it has one of the fastest-growing economies in the world and is a significant participant in international trade.

Economic Liberalization and Opening of Indian Markets:

India's economic policies underwent a substantial shift in the 1990s with the opening of its markets and economic liberalisation. This action was intended to

advance market access, efficiency, and competitiveness. Regulations governing foreign investment were also loosened, bringing in technology and finance from elsewhere. Another major component of liberalisation was the privatisation of state-owned businesses, which aimed to lessen government control and promote private sector involvement in a variety of industries. India had a highly protectionist strategy earlier in this era, with high trade barriers and extensive government control over industries. The liberalisation of Indian markets had a number of beneficial effects. Access to foreign products, services, and innovations was made easier, expanding customer options and encouraging home firms to up their game. Inflows of capital for infrastructure development and employment creation were made possible by an increase in foreign direct investment (FDI). Additionally, the introduction of international firms promoted

knowledge sharing and technology transfer, encouraging innovation and productivity increase. However, there were difficulties with the liberalisation process as well. Domestic industries had to adjust and improve their capabilities due to increased competition from overseas competitors. Several industries, particularly those that had previously been shielded, saw disruptions and job losses. Additionally, in order to ensure that the advantages of globalisation were shared fairly throughout society, the government had to find a balance between economic liberalisation and defending national interests. However, increased economic openness was accompanied by worries over the loss of Indian sovereignty.

Trade Dependency and Policy Constraints

India's increasing involvement in international economic networks has brought both benefits and difficulties. Access to a variety of markets has been made easier by increased commerce, which has also improved export competitiveness and sparked economic growth. The Indian economy is now more susceptible to changes in the global economy and the policy limitations imposed by foreign organisations. Following WTO regulations has occasionally made it more difficult for India to preserve its own industry and put in place specific welfare measures.

Financial Globalization and Macroeconomic Policy Autonomy

India's economic sovereignty has been significantly impacted by financial globalisation. While unexpected capital outflows can undermine domestic stability and constrain policy alternatives, inflows of foreign capital have encouraged investment, boosted GDP, and strengthened financial markets. Indian macroeconomic

policies and fiscal restraint have been influenced by the country's adherence to policy recommendations from foreign financial institutions like the foreign Monetary Fund (IMF), which has limited its ability to pursue specific development objectives.

Regional and Bilateral Trade Agreements

In recent years, India has actively pursued regional and bilateral trade agreements to expand its economic reach. While these agreements offer access to new markets, they also require compromises in terms of sovereignty. Negotiating favorable terms, protecting domestic industries, and safeguarding national interests within the framework of these agreements pose considerable challenges. Balancing economic gains with the preservation of sovereignty becomes a delicate task for policymakers.

Technology and Data Sovereignty

Particularly in terms of technology and data governance, the digital age has added new aspects to national sovereignty. Concerns regarding data privacy, national security, and regulatory control have been highlighted by the expansion of e-commerce, data flows, and the desire for data localisation. The difficulties of sustaining sovereignty in the digital era are best shown by India's attempts to strike a balance between utilising technology improvements and keeping control over data governance.

Role of Domestic Politics and Public Opinion

Domestic politics and public opinion also have an impact on how state sovereignty is affected by economic globalisation. Economic integration policy decisions are

influenced by political dynamics, party ideology, and public opinion. Concerns about sovereignty frequently come up in discussions and disagreements concerning trade agreements, foreign investments, and labour migration. The democratic system in India gives a variety of voices a place to be heard, affecting policy decisions and determining how the nation views economic globalisation.

Conclusion

In the case of India, the effects of economic globalisation on state sovereignty are

intricate and multidimensional. Unquestionable advantages associated with India's economic growth, increased trade, and openness to foreign investment have resulted from its integration into the world economy. It has, however, also placed limitations on policy autonomy, requiring a careful balancing act between economic integration and defending national interests. Insights into the difficulties faced by nations trying to negotiate the dynamics of economic globalisation while protecting their sovereignty in a connected world can be gained from analysing the Indian experience.

THE DECENTRALIZATION PROBLEM WITHIN THE INDIAN DEMOCRACY

Harsh Thakker

Shri Ram College of Commerce, Delhi University



The general election conducted every 5 years in India is the biggest of its kind with 600 million plus voters and a million plus polling stations. This massive event however is not the only election conducted. In the next layer of this complexity lay the state elections, followed by the municipality and panchayat elections of urban and rural India respectively, and let us not forget the countless by-elections that arise every now and then, all keeping the Election commission of India perfectly busy. Within the central government system, the general elections for Lok Sabha are just a part, although a significant one, of the bigger picture that includes electing the government by the MLAs elected through the votes of common public, electing the president and the vice president, electing the speaker of the house, and electing a whole other house of parliament that overlaps with the centre and the state mechanism of our democracy. Such

similarities can be observed within the state tier as well, barring the limitations of power at the 2nd tier. And lastly, the local government elections which are supposed to seal this democratic structure in a perfectly fitting jar of decentralization.

India has achieved decentralization with the three-tier formula. Democracy, the power to the people, has to be maintained and protected from the hands of those who might try to take control of the state for themselves. Decentralization is arguably the best mechanism to ensure this as it makes it harder and harder to consolidate power, especially due to the fact that there are many who wish to consolidate it for themselves, leading to events of tussle between tiers of government, such as the ones recently being seen between the state government of Tamil Nadu and the Governor nominated by the Centre.

But what our democracy has mistaken to be true is that decentralization would be cutting down on corruption and facilitating development of the nation, just because of the copious amount of representation it has enabled. This hasn't translated to be real in practice. Firstly, with every new public office being created by the constitution, there is an increased potential for corruption. In 2022, India stood at the 85th position out of the 180 countries in the Corruption Perceptions Index which measures the perceived level of corruption in the public sector. There are other problems as well, the multi-layered system of governance would mean that the elected officials aren't just focusing on just their re-election, but also on moving up the political ladder, putting governance in the back seat. Secondly, the election system has ensured that the politicians who hold office are often just the best campaigners and not the experts of governance in fields required for the state to function and develop. Thirdly, given the diverse and multifaceted nature of the country, even if decentralization is working at the grassroots level for local development, in the bigger picture it means there is loss of harmony and unity in the country. Often, this extensive decentralization only means delays are caused due to the various levels of authorities and the lack of singular accountability.

The issues caused by the extensive decentralization and the electoral system of India have to be solved by consolidating this power, and sharing it with technocrats. Technocrats are defined to be an elite group of experts who are in power of government. They are equipped with the requisite expertise to run various departments that would be carrying out governance work. Consolidation would mean that the offices of the technocrats at the centre and state level would be given much of the power of existing offices within their tier, and from the 3rd tier as

well. Given the fact that they do not have to stand for elections, they can initiate and pursue policies which aren't focused on pleasing just the majority of voters in the short horizon. Their work, instead, is evaluated by the performance of their policy. This would still maintain decentralization, although to a lesser degree, and allow for checks and balances between the elected politicians and the technocrats.

It is unfeasible to expect that India can transform from the current state of democracy to a technocratic nation, additionally absolute technocracy can have its own drawbacks of corruption, nepotism and lack of accountability outside this elite group. Therefore, the best course of action would be to create committees of technocrats under the currently established public offices within the top two tiers of state machinery. What differentiates this from the already existing system of technocrats advising politicians is that these technocrats would not just be advising the office holders, but also empowered to override decisions of the politicians and implement their policies independently in certain cases. These committees working under the politicians would also mean that they are provided with legitimacy in the eyes of the common public due to the duo-accountability system.

Technocracy isn't an entirely alien concept to India, there are institutions such as the RBI and the Indian Judiciary which have successfully displayed the effects of forming institutions which rely entirely on recruiting subject experts. Giving them more authority would only mean that the elected government isn't able to influence them for advancement of their own political motives as it happened in the failed attempt of curbing black money through demonetization despite being advised against it by the RBI, just to quote one example.

With the technocracy prevailing at the centre and state level, it can leverage the deep-rooted network provided by the local government. With the setup of the technocratic councils, it should mean that despite cross party differences, the larger goals are harmonized. Continuing with that, the third tier should act more of as an implementation centre, but that begs the question, are the elections held at this third tier even necessary? We believe not.

REFERENCES

- *India election 2019: The key statistics.* (2019, March 11). CNN. Retrieved May 27, 2023, from <https://edition.cnn.com/2019/02/16/asia/india-election-numbers-intl/index.html> 99.30% of demonetised money back in the system, says RBI report. (2018, August 29).
- <https://economictimes.indiatimes.com/news/economy/finance/after-almost-two-years-of-counting-rbi-says-99-3-of-demonetised-notes-returned/articleshow/65589904.cms> Ramakrishnan, T. (2023, January 16). *Explained | What led to the Governor-CM rift in Tamil Nadu?*
- *The Hindu.* <https://www.thehindu.com/news/national/tamil-nadu/explained-what-led-to-the-governor-cm-rift-in-tamil-nadu/article66378960.ece>
- *2021 Corruption Perceptions Index - Explore the...* - Transparency.org. (2022, January 25). Transparency International. Retrieved May 31, 2023, from <https://www.transparency.org/en/cpi/2021> Warned government about cost of demonetisation, former RBI governor Raghuram Rajan says.
- (2017, September 3). *Times of India.* <https://timesofindia.indiatimes.com/business/india-business/warned-government-about-cost-of-demonetisation-former-rbi-governor-raghuram-rajan-says/articleshow/60343662.cms> Yadav, M. (2022, December 27). 51 per cent govt projects face delay, cost escalates by 22 per cent.
- *The New Indian Express.* <https://www.newindianexpress.com/business/2022/dec/27/51-per-centgovt-projects-face-delay-cost-escalates-by-22-per-cent-2532117.html>

CONSUMER'S PERSPECTIVE ON SUSTAINABILITY IN FASHION INDUSTRY

Pradeep Kumar

Student, Management Development Institute, Murshidabad



Abstract

Purpose: This research paper explores consumer perspectives on sustainability and circularity in the fashion industry. The study aims to gain insight into consumer attitudes and behaviour towards sustainable fashion, including their understanding of circularity and its role in sustainability.

Study design/methodology: To understand consumer behavior in sustainable fashion, the Chi-square test is performed on the primary data.

Finding: This paper helps to understand the valuable insights for fashion brands and retailers in developing strategies to meet the growing demand for sustainable and circular fashion. Results show that consumers are increasing the awareness about fashion industry and impact on environment by the industry and are

willing to pay more for sustainable and circular products. Additionally, the research highlights the need for clear and transparent labelling of sustainable and circular fashion products to help consumers make informed purchasing decisions.

Keywords: Sustainability, Circularity, Consumer perspectives, Environmental impact, Growing demand, and Awareness.

Introduction

The fast-growing global economy has had major negative impacts on the environment and ecosystem, including destruction and damage to natural forests, the risk to animals, and the overuse of resources. The clothing and textile industry, driven by demand for cheap fast fashion, contributes to these impacts through harmful practices and the use of cheap labor in countries like India,

Bangladesh, China, and Vietnam. This low-cost business model is prevalent globally, including in the South African retail industry.

Today's clothing is often made of a blend of cotton (natural fiber) and polyester (synthetic fiber), both of which harm the environment throughout the clothing's lifecycle from production to disposal. The care phase of clothing has the largest environmental impact. For instance, washing polyester releases about 700,000 microplastics that can't be filtered by wastewater treatment plants and end up in marine ecosystems. To sustainably balance the economy and environment, it's the responsibility of all consumers and organizations to efficiently use resources, reduce emissions, and preserve the global environment and ecosystem for future generations.

The fashion industry is facing unprecedented challenges regarding sustainability and circularity, as consumers become increasingly aware of the impact of their purchasing decisions on the environment. This study seeks to understand the customer's perspective on these issues and assess the extent to which they influence purchasing decisions within the fashion industry. By gaining insights into consumer attitudes and behaviors, the study aims to contribute to the development of more sustainable and circular business models within the industry. This introduction sets the context for the research and outlines the objectives and methodology of the study.

Literature Review

A. Literature review of a study on the sustainable clothing market with reference to Pune city (Thelkar.V, 2018)

This research generally understands the consumers' purchasing patterns for eco-

-friendly and sustainable apparel by basic facts, figures, and basic knowledge about sustainable fashion, eco-friendly, and the description of the environmental effects of clothing to recommend the raw material being used for sustainable fashion. The study is majorly focused on gender and different age group and investigate the relationship between spending and eco-fashion the sample is taken basically from the region of Pune and particular eco-friendly and sustainable clothing. In today's fast fashion world data plays an important role in getting a competitive edge in the industry for retailers, marketers, environmental activists, and policymakers.

B. Consumer behavior in sustainable fashion: A systematic literature review and future research agenda (Basalim.A, et al, 2022)

To identify research gaps and guide future research, this study aims to comprehensively and critically evaluate consumer behavior on Circularity in fashion. In this study, they used 167 journal articles, and 88 of those were eventually synthesized for this review. The methodology, patterns, and theoretical foundations of the research were examined by descriptive analysis. A synthetic analysis using S-O-R was also carried out. Yet, there are a lot fewer qualitative, experimental, cross-cultural, and longitudinal investigations in the literature. Big data research was not found to have any proof. Several studies that have been published lack sufficient theoretical foundation. The perspective of consumer behavior in the literature on circularity in fashion is summarised in this literature study. This also provides insightful information on the relevant marketing material currently in existence. Moreover, it revealed important research gaps that might serve as a roadmap for future studies, including the requirement for additional qualitative, experimental, cross-cultural, longitudinal, and big data-based investigations.

RESEARCH GAP

There is little data on Indian consumers' choices for sustainable clothes., where cheap options are prevalent. This study aimed to fill the information gap by investigating how traditional apparel selection criteria (such as fashion, comfort, quality, usage, and price) and buying habits influence consumer behavior toward sustainable clothing, and how important environmental and social criteria are to various consumer groups. The study also aimed to examine the relationship between consumer group membership and sustainable clothing purchasing behavior. The clothing industry faces ecological and social challenges due to the rise of fast fashion and increasing consumption.

OBJECTIVE AND METHODOLOGY

To find out consumers' perspectives on sustainable fashion through awareness, motivation factors affecting buying behavior, and apparel disposable behavior.

Demographic detail:

In our sample, we are taking the data of 122 respondents out of them 69% are male and 31% are female of the sample. The sample population majority is students 88% of the sample and 11% of the sample are working professionals and 1% the related to business. Whereas taking the age group majority of them lies in the age group between 20-25 years which is 74% of the sample, below 20 age group is 16% of the sample, and above 25 is approximately 10% of the sample. 43% of the sample are spending quarterly around 1500-3000 whereas 28% of the sample are spending 3000-5000 and around 3000-5000 and around 15% of the sample are less than 1500 whereas 14% of the sample spends more than 5000 on clothing apparel.

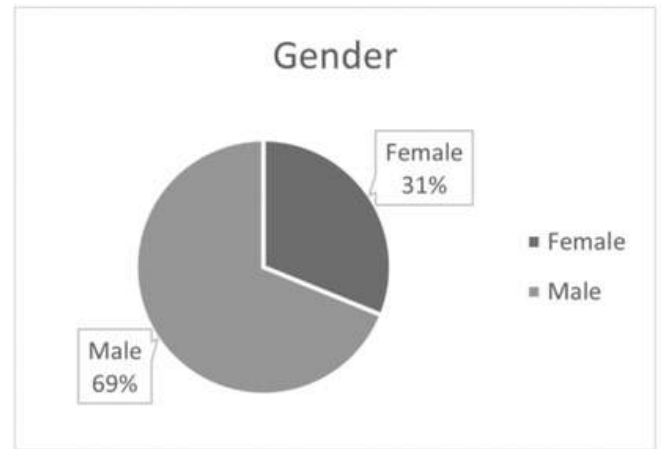


Figure 1

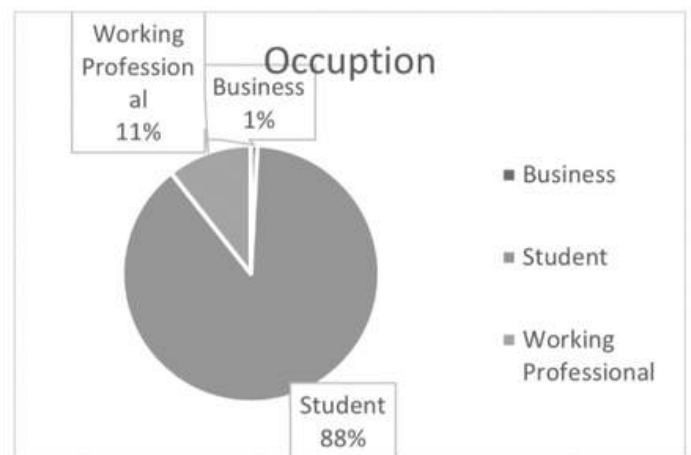


Figure 2

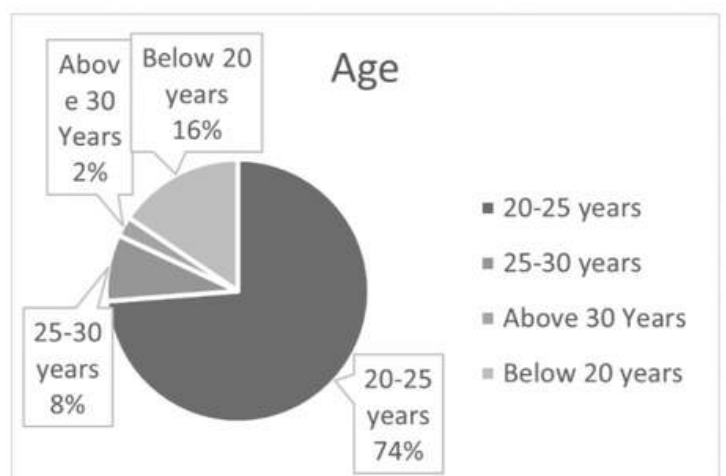
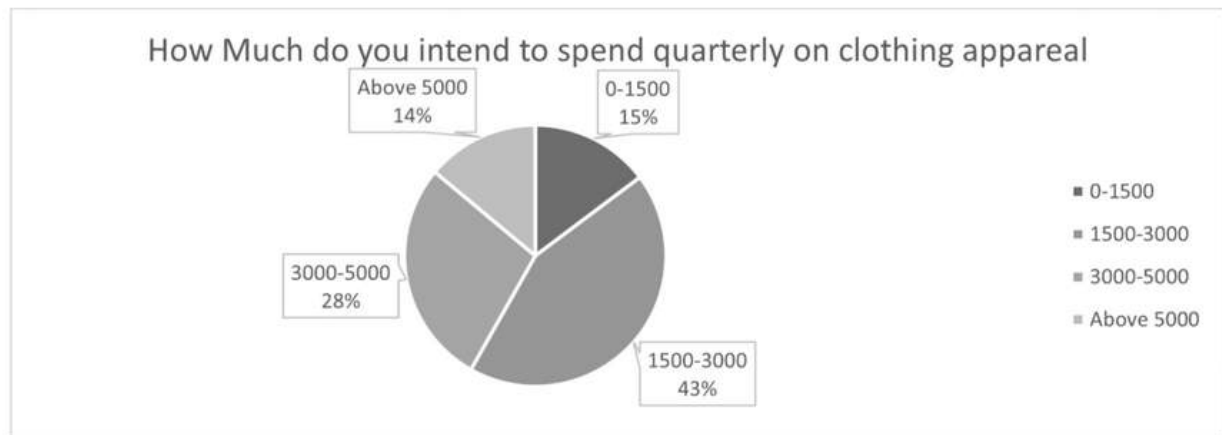
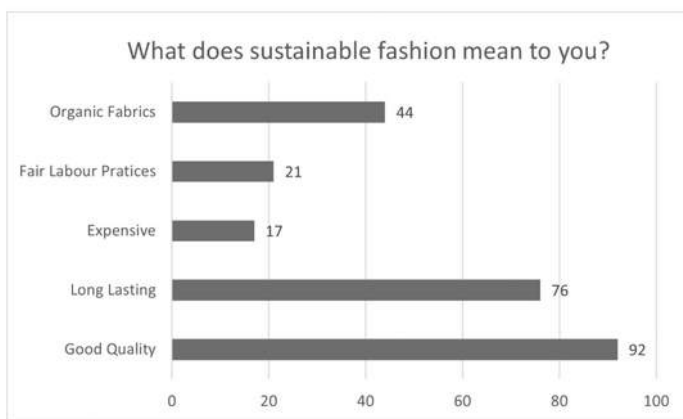


Figure 3



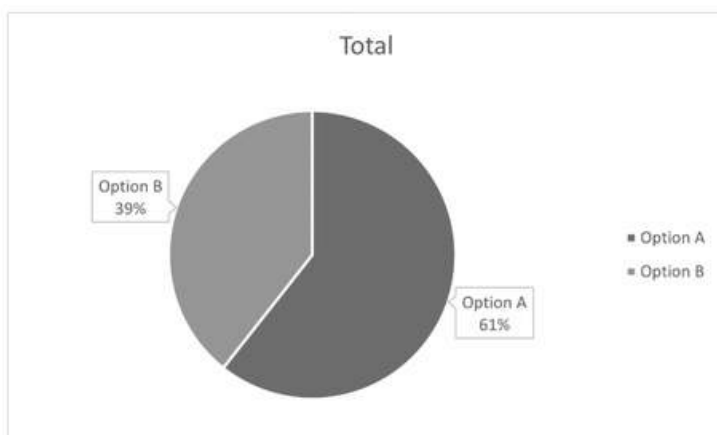
Consumer Awareness of sustainable Fashion



The questionnaire was based on the objective which is to examine Consumer awareness of sustainable fashion according to the responses we can say that the majority of the sample population say that sustainable fashion means good quality and long-lasting and some of them focus on fair labor practices and organic fabrics.

This question was designed to bridge the gap by determining the factors motivating consumers buying behavior. Despite respondents responding positively about purchasing sustainable apparel costing slightly more than non-sustainable apparel, it does not always translate into consumers making the ethical choice of purchasing sustainable clothing with a higher price as we have seen people choosing price as the most important factor which will lead to the consumer looking for value for money.

Motivation Behind Consumer's Purchasing Behaviour

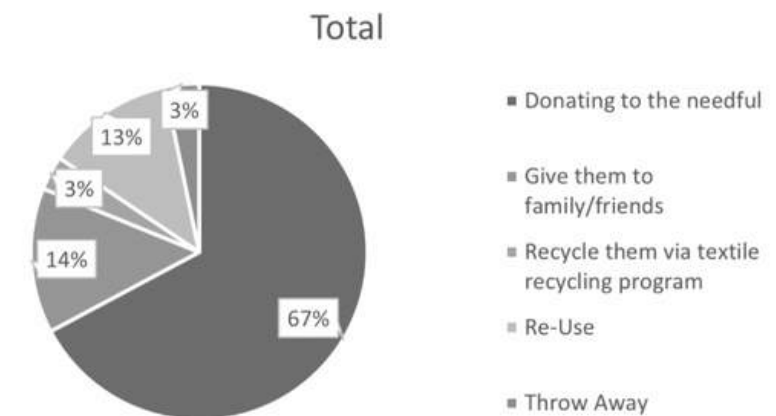


While shopping, if you saw two types of clothing items

- A. One made from sustainable fabrics but costing more.
- B. One made from non-sustainable fabric and costing less.

Which one would you purchase?

The only objective of this question was to determine what consumers have done with their old clothes up to this point and what they would do in the future with new sustainable clothing, which may or may not be the same, to determine whether we will need this information in the future. Overall, it was encouraging to see that individuals understand the value of safe disposal. This demonstrated that 67.2% of the sample donated used clothing to those in need, 13.9% gave them to family or friends, and the remaining 40% decided to discard, reuse, or recycle them. People might start recycling more items rather than throwing them away if there were more textile recycling programs available.



Consumer Clothing Disposal Behaviour

CHI-SQUARED TEST				
Gender		Value	df	Asymptotic Significance (2-sided)
Female	Pearson Chi-Square	6.031 ^b	3	.110
	Likelihood Ratio	6.906	3	.075
	N of Valid Cases	38		
Male	Pearson Chi-Square	2.833 ^c	3	.418
	Likelihood Ratio	4.233	3	.237
	N of Valid Cases	84		
Total	Pearson Chi-Square	5.958 ^a	3	.114
	Likelihood Ratio	6.529	3	.089
	N of Valid Cases	122		

a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.18.

b. 4 cells (50.0%) have expected count less than 5. The minimum expected count is .39.

c. 5 cells (62.5%) have expected count less than 5. The minimum expected count is .79.

At 0.05% significance level it is clear using chi-square at p-value .114 we will not reject the null hypothesis i.e. There is no relationship between consumers willing to pay more for sustainable apparel and gender in different age groups. Both male and female are equally inclined to spend more on sustainable and eco-friendly apparel.

Hypothesis Test

Hypothesis: There is indifference between Gender and desire to pay extra for sustainable clothing.

H0: There is no relationship between Gender and desire to pay more for sustainable clothing.

H1: There is a relationship between Gender and the desire to pay more for the sustainable clothing

H0=Null Hypothesis

H1=Alternate Hypothesis

Age * While shopping, if you saw two types of clothing items A. One made from sustainable fabrics but costing more. B. One made from non-sustainable fabric and costing less. Which one would you purchase? * Gender Crosstabulation						
Gender				While shopping, if you saw two types of clothing items A. One made from sustainable fabrics but costing more. B. One made from non-sustainable fabric and costing less. Which one would you purchase?		Total
				Option A	Option B	
Female	Age	20-25 years	Count	10	11	21
			Expected Count	12.7	8.3	21.0
		25-30 years	Count	1	0	1
			Expected Count	.6	.4	1.0
		Above 30 Years	Count	0	1	1
			Expected Count	.6	.4	1.0
		Below 20 years	Count	12	3	15
			Expected Count	9.1	5.9	15.0
	Total		Count	23	15	38
			Expected Count	23.0	15.0	38.0
Male	Age	20-25 years	Count	41	28	69
			Expected Count	41.9	27.1	69.0
		25-30 years	Count	5	4	9
			Expected Count	5.5	3.5	9.0
		Above 30 Years	Count	1	1	2
			Expected Count	1.2	.8	2.0
		Below 20 years	Count	4	0	4
			Expected Count	2.4	1.6	4.0
	Total		Count	51	33	84
			Expected Count	51.0	33.0	84.0
Total	Age	20-25 years	Count	51	39	90
			Expected Count	54.6	35.4	90.0
		25-30 years	Count	6	4	10
			Expected Count	6.1	3.9	10.0
		Above 30 Years	Count	1	2	3
			Expected Count	1.8	1.2	3.0
		Below 20 years	Count	16	3	19
			Expected Count	11.5	7.5	19.0
	Total		Count	74	48	122
			Expected Count	74.0	48.0	122.0

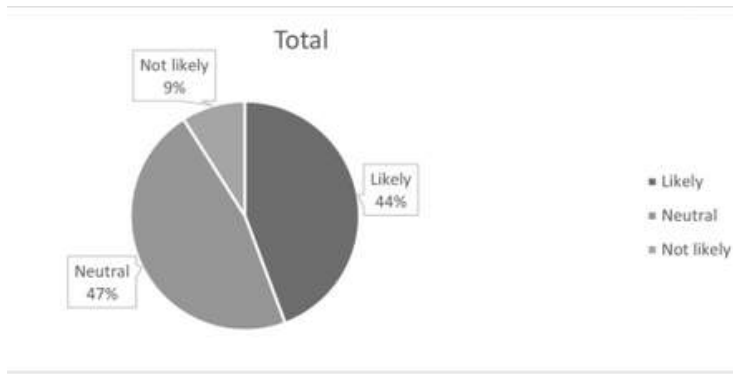


Figure 9

DISCUSSION

Clothing sustainability is very complex, and while consumers may be aware of what sustainable clothing is, it appears that the main challenge is a lack of understanding as to why it is important to support it. People can only know what they are regularly exposed to, which is linked to what is common knowledge. Sustainable fashion is still a niche topic, and more measures must be put in place to ensure that more information is easily accessible to all clothing consumers.

Consumers are on the right track, and the majority of them are aware of the proper reuse and disposal of clothing, as evidenced by data showing that the majority of them donate to the needy and give to family and friends.

Through our primary data, we can conclude that consumers' major motivating factors are price and quality. And as we are aware that sustainable clothing uses the best quality and practices impacting it with a high price. So, price becomes a major factor deterring the shift towards sustainable fashion. We could suggest that social marketing can be used by the fashion industry to explain why people choose to wear sustainable clothing. The use of sustainable clothing can even be promoted by fashion brands through awareness campaigns and initial promotional deals.

We asked this question to be able to verify whether the responses filled in by people before are similar or not. As 46.7% of the sample here are neutral about deciding whether to shift or not, this contradicts their previous statement in which they were ready to pay more to buy sustainable clothes.

CONCLUSION

The research aimed to investigate consumers' behavior regarding green/sustainable clothing.

The following research goals were developed to fulfill the purpose of this research study:

- to explore consumer awareness of sustainable fashion.
- to determine the motivation behind consumers' purchasing behavior on sustainable clothing
- to determine the consumers' motivation behind their clothing disposal behavior.

From the study, we have determined that there is indifference between Gender and desire to pay extra for sustainable clothing, and this study concludes with three major findings, one of which is that motivation plays a significant influence in the purchasing decision-making process for sustainable clothing. The second one is that information on sustainable clothing should be readily available to consumers so they can make more informed decisions. Lastly, clothing disposal options and textile recycling programs should be available for all consumers of clothing to reduce apparel waste in the fashion industry. From these findings, we can educate the consumer about environmentally friendly clothes and

we can also help the retailers that how much awareness among customer about sustainable clothing and that help in focusing the different target group according to different factor age, occupation, spending, and willingness to change into the sustainable clothing. Last but not least we can focus on the disposal behavior in our targeted group most of them are disposing of their clothing by donating the needful and reusing which means we also think about the material which is sustainable and reusable so, the waste is minimum because the apparel waste is also one of the major problems at that point of time.

SCOPE FOR FURTHER RESEARCH

Since the majority of the respondent are students, we will like to expand this research toward working professionals and business owners, and this research is basically done in the geographical area of West Bengal. There are several limitations, such as a small sample size and a short time frame, which may present an opportunity to extend this research to another region of India. Given that India has the biggest population in the world, there are several opportunities to spread this research throughout India. As a result, we may learn about customer preferences and awareness of how to dispose of appeals. thus there is a degree of awareness that can aid in retailers' and the apparel industry's attention to sustainable fashion.

REFERENCES

Basalim.A, et al. (2022). Consumer behavior in sustainable fashion: A systematic literature review and future research agenda. International Journal for consumer studies. doi:https://doi.org/10.1111/ijcs.12794

Thelkar.V. (2018). A Study on Sustainable Clothing Market. With Reference. IJETMR. doi:https://doi.org/10.29121/ijetmr.v5.i6.2018.246

Closing the loop: Increasing fashion circularity in California

Our clothes shed microfibres – here's what we can do

GROWTH, DEVELOPMENT, AND THE INDIAN ECONOMY: A HOLISTIC PERSPECTIVE

Adems Jimmy George
Investment Banking at Sett & Lucas



The Indian GDP was ranked eleventh in the world a mere ten years ago. However, the International Monetary Fund now ranks India's economy as the fifth largest, surpassing that of the United Kingdom in terms of size. By 2047, when India celebrates its 100th year of independence, the country is expected to have a GDP of 30 to 40 trillion dollars, according to the predictions of some HNIs. Is it possible for India to have a developed economy with a per capita income of \$13,000 at that point? The question of whether India can reflect its GDP growth in terms of development, particularly in the crucial areas of health and education, in terms of people's living standards, or in terms of the development index, is more important than the GDP growth itself. Let's look at the following indices and understand the situation more clearly.

A report from the United Nations Develop-

-ment Programme (UNDP) ranked India at position 132 out of 191 countries with a 2021 human development index score of 0.633. Indian human development is rated as being at a medium level. On the Global Hunger Index, India comes in worse than any other South Asian nation, with the exception of war-torn Afghanistan at position 107 out of 121. India was recently placed 135th out of 146 nations in the World Economic Forum's Global Gender Gap (GGG) Index for 2022. India fell from position 142 to position 150 in the 2022 World Press Freedom Index from the previous year. The labor force participation rate (LFPR) has decreased from an already low 47% in 2016 to just 40%, according to data from the Centre for Monitoring the Indian Economy (CMIE). For India to become a major global force, social peace is a prerequisite. India will only move more slowly if it is divided communally.

The Indian economy would have about 140 crore people by the time of the 2021 census. The per capita income of the nation currently stands at roughly 2000 USD, while China, a major rival, earns over 12000 USD. Although, it is remarkable that India is displaying positive GDP growth at a time when all of the western countries are experiencing a slowdown due to the Russian invasion of Ukraine and the subsequent disruptions in supply. India will also be a destination for international investment because of its geopolitical situation when several countries implement the China-plus-one strategy. Companies like Apple intend to move their manufacturing operations to India. However, India needs a more robust manufacturing sector in order to serve as a global hub. And during these trying times, when everyone was watching India, it also took over the G20 forum presidency. Through the event's theme and logo, India plans to showcase its philosophies of Vasudhaiva Kuttumbakam (one earth, one family, and one future) and LiFE (Lifestyle for Environment), which will help advance its positive trend in the international arena.

India should first, however, tackle its internal issues, which range from Assam and Meghalaya border shootings to economic worries to religious disputes. According to data from the Centre for Monitoring the Indian Economy (CMIE), India's jobless rate rose to a 16-month high of 8.30% in December from 8.00% the previous month. On October 2, 2019, the 28 Indian States and 8 Union Territories declared all of their villages to defecation-free (ODF). However, according to the data from the most recent National Family Health Survey (NFHS-5) no state out of the 30 surveyed is devoid of open defecation. The survey's results showed that more than 25% of rural families used open defecation. Such rural homes accounted for more than 40% of all households in several states, such as Bihar and Jharkhand.

The Indian growth story needs a thorough analysis as our GDP growth is around 7-8% which is appreciable, but should understand that it is the growth from a dip during the pandemic. Moreover, the Indian economy was moving through a slowdown even before the COVID-19 pandemic, in which demonetization and GST played a crucial role. Despite being one of the highest in the world, India's investment rate has decreased from its peak of 39% in FY2012 to roughly 31% of GDP on average from 2015-16 to 2019-2020. This slow pace of the investment rate is a major concern.

India spends only approximately 3% of its GDP on the health sector, compared to China, a neighbor and the most difficult country, which invests roughly 5% of its GDP in public health. India also doesn't make a lot of investments in the education sector. Since we want to be a developed country, these issues should be given more attention.

We also witnessed what transpired in two of our close neighbors, Pakistan and Sri Lanka. Both of these nations were dealing with significant financial debt as well as political unrest. We should also keep an eye on how China is undergoing turbulence as a result of the rising number of COVID infections, as have other countries. We are seeing an increase in cases in India as well, which means that we should be better prepared to deal with the pandemic, which is still ongoing. In an interview with the Economic Times, British economist Jim O'Neill, who came up with the acronym BRICs—for Brazil, Russia, India, and China—said that China has already passed its peak years and that India will have the brightest future in the following five years. Western countries opposing China will backfire since it is the world's factory, which makes it strong. The other option would be for India to take over as the global center for manufacturing. India's eight core industries produced 5.4% more in november

2022 than in November 2021, which was due to stronger performances in the coal, fertilizer, steel, cement, and electricity sectors. However, November of this year saw negative growth for crude oil, natural gas, and refinery products. In November 2022, compared to a year earlier, the production of coal increased by 12.3%, fertilizer by 6.4%, steel by 10.8%, cement by 28.6%, and power by 12.1%.

According to the S&P Global India Manufacturing Purchasing Managers' Index, India's manufacturing sector experienced its sharpest increase in output in 13 months in December 2022, with new orders growing at the fastest rate since February 2021 despite selling prices rising more than input costs for the first time in 2.5 years (PMI). A substantial improvement in the sector's health—the best since October 2020—was reflected in the seasonally-adjusted PMI index for December 2022, which increased to 57.8 from 55.7 in November.

India's industrial output, as measured by the Index of Industrial Production (IIP), increased by 7.1% from the prior year in the month of November, according to data made public by the Ministry of Statistics and Programme Implementation on January 12, 2023. It climbed by 5.5% between April and November, according to the data. The Union Cabinet approved the National Green Hydrogen Mission on January 4th, with the goal of making India a global leader in utilizing, producing, and exporting green hydrogen. The price would be 19,744 crore. By 2030, the center projects that its investments will bring in 8 trillion dollars in funding and create over 6 lakh new jobs.

India's gross domestic product (GDP) surpassed analyst estimates by growing at 6.1 percent in the last quarter of the previous fiscal year. According to the Ministry of Statistics and Programme

Implementation (MOSPI), the Center now expects the overall growth rate of FY23 to be 7.2 percent. The manufacturing sector experienced growth of 1.3 percent in FY23, a decline from the 11.1 percent growth witnessed in FY22. Conversely, the agriculture, forestry, and fishing sectors registered growth of 4 percent in FY23, an improvement from the 3.5 percent growth recorded in the previous fiscal year.

Strong demand and decreasing raw material expenses are enabling the South Asian country to achieve faster economic growth compared to many other major global economies. This favorable situation allows the Reserve Bank of India to maintain higher borrowing costs until inflation is effectively managed.

The central bank, having kept its key interest rate unchanged this month, anticipates a 6.5% growth rate for the economy in the current fiscal year. However, experts in the field predict a more sluggish expansion due to the unpredictable monsoon patterns. India's gross domestic product (GDP) exceeded analyst estimates by recording a growth rate of 6.1 percent in the last quarter of the previous fiscal year. This positive performance, reported by the Ministry of Statistics and Programme Implementation (MOSPI), has led the Center to revise its expectations for the overall growth rate of FY23 to 7.2 percent.

However, the manufacturing sector experienced a slowdown in FY23, with a growth rate of 1.3 percent compared to the robust 11.1 percent growth seen in FY22. On the other hand, the agriculture, forestry, and fishing demonstrated improvement, achieving a growth rate of 4 percent in FY23, surpassing the 3.5 percent growth recorded in the previous fiscal year.

Amidst these trends, the Reserve Bank of India (RBI) has implemented a series of

interest rate hikes totaling 250 basis points since May of the previous year. Economists anticipate that the RBI will maintain the current interest rate for the remainder of 2023 as it assesses the impact of the earlier rate increases.

Looking ahead, the forecasts predicting a normal monsoon season in the next four months could potentially support the farm sector, which grew at a rate of 5.5 percent year-on-year in the March quarter. This marks an improvement compared to the upwardly revised growth rate of 4.7 percent witnessed in the previous quarter.

In conclusion, India's economy has displayed resilience and potential for growth despite facing various challenges. The country has made significant strides in sectors such as technology, services, and manufacturing, positioning itself as a global player. However, it is crucial to address persistent issues such as income inequality, infrastructure development, and social welfare to ensure inclusive growth and improve the quality of life for all citizens.

India's response to the COVID-19 pandemic highlighted the need for investment in healthcare infrastructure and the importance of preparedness for future

preparedness for future crises. Furthermore, sustainable development practices, such as renewable energy initiatives and environmental conservation efforts, should be prioritized to mitigate the impact of climate change and foster a greener economy. To achieve its aspirations of becoming a developed nation, India must continue to focus on education, research, and innovation to nurture a skilled workforce and foster technological advancements. Additionally, addressing bureaucratic hurdles, promoting ease of doing business, and attracting foreign direct investment will be key in creating a conducive environment for economic growth.

While challenges remain, India possesses immense potential and a young demographic dividend that can drive economic progress. By leveraging its strengths, addressing its weaknesses, and implementing sound policies, India can chart a path toward sustainable development, improved living standards, and inclusive prosperity for its citizens. With determination, strategic planning, and collaboration between the government, private sector, and civil society, India can realize its vision of becoming a vibrant and influential global economy.

POSSIBLE IMPACT OF A FREE TRADE AGREEMENT BETWEEN GULF COOPERATION COUNCIL AND INDIA

Dr. Badri Narayanan Gopalakrishnan and Vishnu Das Gupta

Fellow & Former Head, Trade, Commerce & Strategic Economic Dialogue, NITI Aayog, GoI and Independent Researcher



Abstract:

India and the Gulf Cooperation Council (GCC) countries decided to resume their trade agreement negotiations in order to generate employment, increase trade and raise standards of living. The paper explores what maybe the possible impact of a trade agreement between India and GCC countries on various factors (like production, wages, GDP, employment etc.). The paper uses GTAP (Global Trade Analysis Project) which is a multi-country, multi-sector computable general equilibrium (CGE) model. The results show that, at-least with respect liberalization with respect to trade in goods (i.e., reduce customs duties to a certain degree), there maybe a positive impact on the respective economies of India and GCC countries on account of the trade agreement.

I. Introduction

Free Trade Agreements (FTAs) are arrange-

ments between two or more countries or trading blocs that primarily agree to reduce or eliminate customs tariff and non-tariff barriers on substantial trade between them. There is an increasing trend towards signing trade agreements. Globally 360 agreements are in force. FTAs are seen as a route for increasing a country's exports and given the deep nature of modern-day FTAs; they can also facilitate investments and integration into value chains. EU is well known example of intra-regional trade as most of the trade of EU countries is intra-EU trade.

Some of the main reasons for entering into FTAs are given below:

- Diversification and expansion of export markets: FTAs by granting preferential access (lower customs duties) across many products can help countries diversify their exports and access new markets.

- Access to raw materials, intermediate products and capital goods for value added manufacturing: FTAs can help countries get access to raw materials; intermediate goods for value addition and capital goods for augmenting manufacturing capability at lower costs and thus can enable greater value addition within the country.
- Attracting foreign investment: By signing FTAs, a country can export to the other country/countries within the same agreement at preferential rates. This can make countries attractive towards foreign investment as foreign investors can set up units in one country and export to several

others paying lower duties through FTAs. As such FTAs can attract foreign investment to stimulate manufacturing; generate employment; and improve competitiveness.

- Preventing erosion of existing preferences: As mentioned FTAs grant preferential access, so countries not part of trade agreements with existing export destinations may lose out in terms of market share vis-à-vis countries which have trade agreements in place.
- Geo political reasons: Countries also engage in FTAs for geo-political reasons such as India's Act East Policy.

The growth of trade agreements is summarized in the below table.

Table 1: Growth of Trade Agreements (1958 – 2021)

Time Period	Number of Agreements (Entry in Force)	Goods	Services	Goods & Services	FTA	Customs Union (CU)	Economic Integration Agreements (EIA)	CU & EIA	FTA & EIA	Partial Scope Agreement (PSA)	Relevant GATT Round/WTO Ministerial
1958-70	4	2	-	2	1	1	-	1	1	-	Dillon & Kennedy Rounds
1971-77	10	9	-	1	6	1	-	1		2	Tokyo Round
1981-89	9	8	-	1	1	3	-		1	4	Uruguay Round
1991-2000	62	53	1	8	41	8	1	3	5	4	Singapore, Geneva and Seattle Ministerial
2001-10	131	51	-	80	40	4	-	2	78	7	Doha, Cancun, Hong Kong, and Geneva Ministerial
2011-21	135	45	1	89	41	-	1	1	88	4	Geneva, Bali Nairobi and Buenos Aries Ministerial

Source: World Trade Organization

Within the ambit of trade agreements, there are different types of agreements, based on their coverage and scope, but all of them for the most part fall under the categories of Free Trade Area or Customs Union or Economic Integration Agreement or Partial Scope Agreement. Their definitions as per the WTO is given below :

Free Trade Area: Free-trade area shall be understood to mean a group of two or more customs territories in which the duties and other restrictive regulations of commerce (except, where necessary, those permitted under Articles XI, XII, XIII, XIV, XV and XX) are eliminated on substantially all the trade between the constituent territories in products originating in such territories.”

Customs Union: A customs union (CU) is defined as

- the substitution of two or more customs territories into one;
- substantive elimination of duties and restrictive rules of commerce; and
- harmonization of duties and regulations

Economic Integration Agreement: An Economic Integration Agreement (EIA) is defined in in Article V of General Agreement on Trade in Services (GATS) and involves liberalization in services trade. One important point to note is that while Free Trade Area is concerned with goods trade, EIAs are concerned with services trade.

Partial Scope Agreements: The Partial Scope Agreements (PSAs) are notified under paragraph 4(a) of the Enabling Clause

“4. Any contracting party taking action to introduce an arrangement pursuant to paragraphs 1, 2 and 3 above or subsequently taking action to introduce modification or withdrawal of the differential and more favourable treatment so provided shall

a) notify the CONTRACTING PARTIES and furnish them with all the information they

may deem appropriate relating to such action;” Partial Scope Agreements in short refer to the unilateral trade concessions given by developed economies to developing economies and LDCs.

Many modern-day trade agreements are more than just offering preferential trade concessions in goods. They involved liberalization in services trade and also include other areas such as investment, intellectual property, standards, government procurement and other areas. Trade agreements that go beyond just trade in goods and involve services and some of the above-mentioned areas are regarded as comprehensive in nature as these agreements also cover many behind the border measures.

Some recent examples of comprehensive FTAs include the Comprehensive and progressive Trans Pacific Partnership, the EU Viet Nam FTA and the Regional Comprehensive Economic Partnership.

The rest of the paper is structured as follows: Section II gives a brief summary of the importance of FTAs. Section III explains briefly the methodology used and gives the results of the same. Section IV offers some brief concluding remarks.

II. Importance of FTAs

It may be overly simplistic to categorize preferential trade agreements (PTAs) of FTAs as uniformly good or bad. In reality, PTAs can be beneficial or harmful depending on the negotiation capacity and quality. There is empirical evidence showing the benefits of trade agreements for participating countries as well as the heterogeneity of the impact of trade agreements, depending on the specific provisions of each agreement.

For instance, a study by Baier & Bergstand (2007) reveals that on average, based on a dataset of trade flows for 96 countries during 1960 and 2000, PTAs are found to

approximately double bilateral trade between countries after 10 years. Further Mulabdic et al.(2017) studied the specific case of trade between UK and the EU to finally conclude that PTAs do aid in augmenting trade in goods and services. To quote numbers, the trade in goods and services rose by 42% and value-added trade by 14%, on average.

Going further, Laget et al. (2018) find that deeper PTAs contribute towards increased global value chain linkages among participating countries. Focussing on policies related to trade agreements may increase the domestic value added of intermediates (forward global value chain linkages) and the foreign value added of intermediates (backward global value chain linkages) by 0.48% and 0.38%, respectively.

As a result, deeper trade agreements enable countries to further strengthen industries through higher levels of value added. Trade liberalisation through PTA's can also generate significant preferential margins, especially in the agro-food, textiles and clothing industries (Espitia et al. 2020). Further, Anderson & Yotov (2016) reveal significant positive effects of the PTA's on the bilateral trade volume in manufacturing goods for the 1990-2002 periods.

All these benefits however, are contingent on factors such as the negotiation capacity to secure favourable terms in trade agreements, establishment of a strong and robust manufacturing sector and development of appropriate trade infrastructure.

In the case of India, studies have analysed the impact of Trade Agreements (TAs) using different empirical specifications ranging from simple pre-post evaluation to analysis within the Global Trade Analysis Project (GTAP) and SMART framework. The results of the studies analysing the impact of the FTA's has been ambiguous.

For instance, studies that evaluate both the ex-ante as well as the ex-post impact of the India-ASEAN FTA have been undertaken. The ex-ante analysis of the impact of India-ASEAN FTA with a full trade liberalisation scenario had concluded that India's allocative efficiency will increase, but the terms of trade effect will worsen continuously and remain negative (Ahmed (2010) and Sikdar and Nag (2011)). On the other hand, the ex-post analysis concluded that post India-ASEAN FTA, India's exports to ASEAN increased substantially, with the largest accesses gained in Thailand, Cambodia, Vietnam, Malaysia, the Philippines and the Lao People's Democratic Republic. ((Venkatesh and Bhattacharyya (2014)).

Another study by Seshadri (2015) on India-Korea TA concluded that progressive tariff reductions resulted in steady improvement in TA utilisation. However, India's overall exports to Korea did not gain and the growth was confined to certain sectors. Similarly, studies on India Sri-Lanka FTA found modest increase in trade flows between the two countries with diversification in the export baskets of both the partners (Mukherji et al. (2002), Weerakoon et al. (2006), Joshi (2012)).

The argument that is generally put forward against the TA's is that they lead to worsening of India's trade deficit with the partner countries with which the agreements have been signed. However, this is the mercantilist way of evaluating the gains from trade.

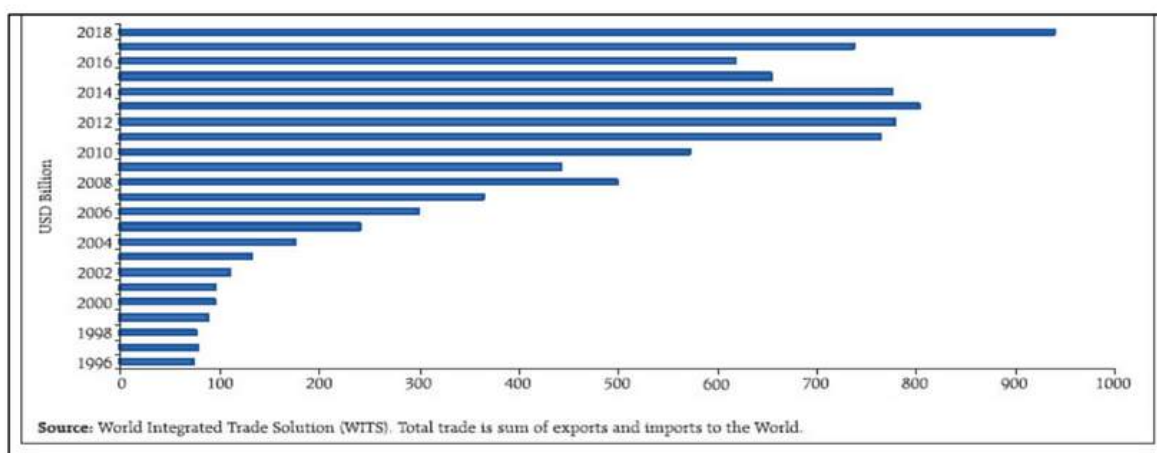
In order to gauge the real benefits from a trade agreement, one needs to look at it from a broader perspective as a country's gains from free trade arise from the fact that it leads to a more efficient allocation of a country's resources. Alternatively, there is a need to test the crucial hypothesis as to whether these regional trading agreements translated into desired outcomes in terms

of growing trade between India and its agreement partners during the subsequent period. Preliminary analysis (RBI 2019) reveals that India's total trade in value terms has increased substantially during the last two decades (Figure 1). An increased growth in trade flows has been witnessed between India and the partner countries. Increased shipments of capital goods and industrial supplies from trade partner economies might have contributed indirectly in enhancing the productive capacity in the country.

As per results of the empirical analysis undertaken by the RBI, a disaggregation of India's trade with its agreement partner

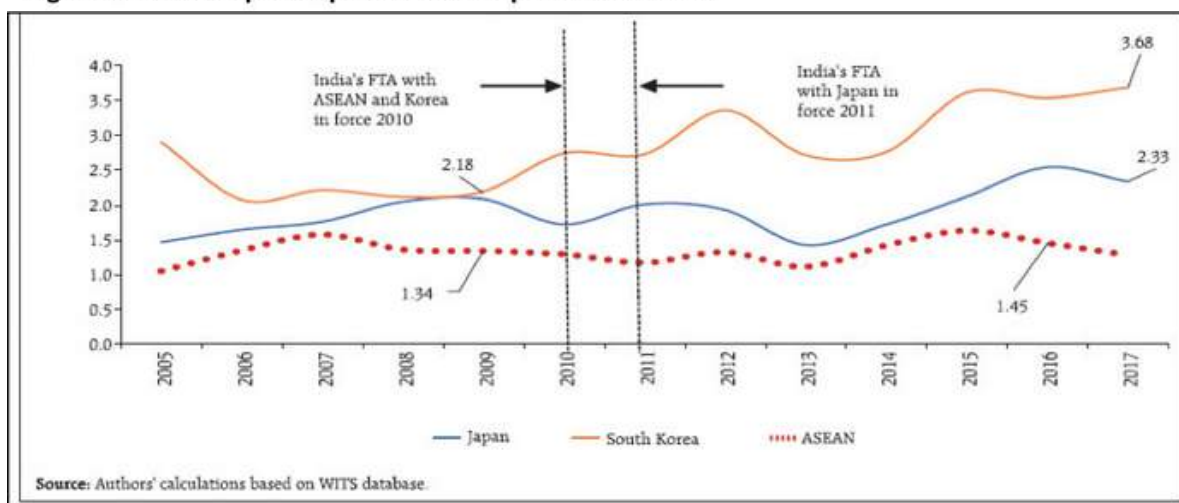
and non-partner countries shows that inter-linkages between India and its TA partners have strengthened with a substantial and persistent upward trend in the last two decades. Further, evidence points towards improvement in trade with India's partner countries particularly imports from these countries post signing of the agreement. Imports have increased at a faster pace as compared to India's exports to these countries. This holds true for countries/regional blocs with whom India has recently entered into trading agreements, viz., Japan, South Korea and ASEAN, where the ratio of India's imports to its exports has gone up. (Figure 2).

Figure 1: India's total trade (in value terms, 1996-2018)



Source: Foreign Trade Agreements: An Analysis, RBI (2019)

Figure 2: India's Import-Export Ratio with partner countries



Source: Foreign Trade Agreements: An Analysis, RBI (2019)

Although, India's exports could not keep pace with the spurt in imports, the positive impacts of the TA's mentioned above cannot be overlooked. Moreover, in order to gauge the real benefits under the TA, there is a need to carry out a closer examination of the composition of the import and export basket from each individual partner country. There exists sufficient evidence in the literature supporting the idea that greater access to capital goods and intermediate inputs due to reduced cost of imports might improve competitiveness and efficiency in the domestic market.

To cite an example, in the case of India-Japan FTA, imports to India majorly comprised of imported industrial supplies, capital goods and transport equipment which may be a positive indicator as these goods are used as inputs in producing the final goods and thus aid in enhancing the productive capacity of the economy (Table 2) (next page)

III. Possible impact of a Free Trade Agreement between India and the GCC

The Gulf Cooperation Council consists of 6 countries. India and the GCC countries decided to resume their trade agreement negotiations to create jobs and raise standard of living in both the regions.

In this section, the study looks at what would be the possible impact of a trade agreement between India and GCC countries. The impact is examined with respect to Production, Market Prices, Exports & Imports, exports between India and GCC countries, employment & wages, investment and GDP.

The Global Trade Analysis Project (GTAP) model was used to conduct a simulation exercise on the possible impact. GTAP is a multi-country multi sector Computable General Equilibrium model. A figured describing the GTA model is given below.

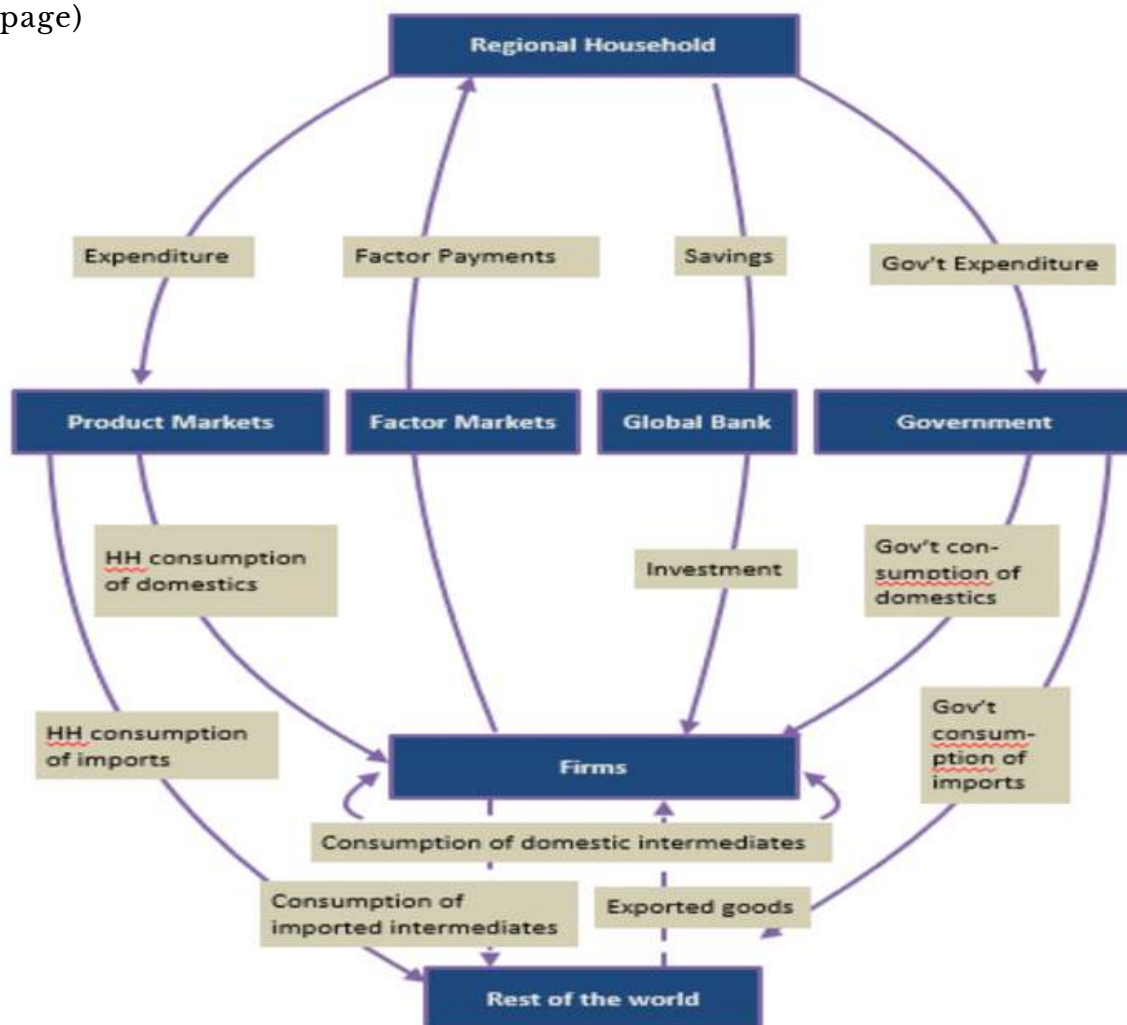


Table 2: India's Imports from Japan (Share in percent)

Sectoral Classification	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Capital Goods (Except Transport Equ)	48.4	47.9	46.9	46.7	50.5	50.0	46.1	47.5	45.7	45.5	42.2	42.8	38.8	45.6	40.9
Consumer Goods	4.7	4.4	4.8	3.7	3.1	2.3	3.2	2.9	2.9	2.9	2.4	2.3	2.1	2.3	2.3
Food and Beverages	-	-	-	-	-	-	-	-	0.2	0.2	0.1	-	-	0.1	-
Fuels and Lubricants	2.6	3.4	0.8	1.6	3.1	5.9	3.0	1.8	3.6	3.3	2.2	2.1	2.2	1.5	2.3
Industrial Supplies	37.1	33.4	35.0	30.7	32.3	30.9	33.4	37.6	37.6	37.9	42.7	42.1	47.2	39.9	43.7
Transport Equipment	7.2	10.9	12.5	17.3	11.0	10.9	14.3	10.2	10.0	10.2	10.4	10.7	9.7	10.6	10.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
--Nil/Negligible															
Source: RBI empirical study calculations based on WITS database.															

Source: Foreign Trade Agreements: An Analysis, RBI (2019)

The simulation exercise was done based on certain assumptions on how tariffs (customs duties) might be reduced by both India and GCC countries. The analysis is only with respect to trade in goods (merchandise trade). The results of the exercise are given below:

Production

The results pertaining to the possible impact on production are given in table 3. With respect to India, it is seen that there may be an overall positive impact on the growth of the manufacturing industry (Manufacture of Textiles – Gas manufacture, distribution). It may be seen that excluding leather and related products and pharmaceuticals, for the other industries under manufacturing there is an overall positive growth. This may be seen in labour intensive industries such as textiles and apparel, building blocks such as chemicals and chemical products, petroleum and coke, iron and steel, non-ferrous metal etc.

This overall positive growth in manufacturing is also seen with respect to technology and capital-intensive manufacturing India is quite keen on promoting such as computer and electronics, electrical equipment, machinery and equipment, motor vehicles etc. This may possibly be happening due to two possible reasons. One, a fall in import tariffs with respect to GCC countries, may

make it cheaper to import intermediates from them, thereby allowing for output expansion possibly due to lower cost of imports from FTA partners. Another possible reason for this may be, due to the lower costs of importing from GCC countries, the possible cost savings in imports of certain products, may be used in increasing imports of intermediates in capital and technology intensive goods in general. This may also probably aid in the expansion of production in products such as computer and electronics, electrical equipment etc. But it may be seen that production in the agriculture industry may be declining. A part of the reason may be an expansion of production in the manufacturing industry which may be bidding away workers from the agriculture and food processing industry and also the general overall reduction in tariffs.

However, this negative impact on agriculture in actual terms may be minimal as agriculture is a sensitive area for India in negotiations and reductions in agriculture may be less than those given in industrial products. With respect to the GCC countries, manufacturing is seen decreasing across many of the countries. This may be due to the concessions given to India, allowing Indian manufacturing exports to be competitive.

In summary, there may be an overall positive impact on Indian manufacturing, with the impact being felt across more or less all industrial products.

Table 3: Change in Production (Agriculture and Manufacturing), India and GCC Countries (% change)

Industry	India	UAE	Saudi Arabia	Qatar	Kuwait	Oman	Bahrain
Rice: seed, paddy (not husked)	-0.18	28.7	5.21	0.12	7.77	-0.62	0.11
Wheat: seed, other	-0.13	7.74	0.01	-0.43	-1.15	-1.54	1.86
Other Grains: maize (corn), sorghum, barley, rye, oats, millets, other cereals	-0.04	16.86	-0.21	-0.06	0.22	-1	0.02
Veg & Fruit: vegetables, fruit and nuts, edible roots and tubers, pulses	-0.06	-0.42	-0.15	-0.19	-0.13	5.42	-0.02
Oil Seeds: oil seeds and oleaginous fruit	-0.6	0.48	-0.29	-0.12	1.85	1.11	1.78
Cane & Beet: sugar crops	0.33	1.78	5.99	-0.09	0	-0.3	0.97
Fibres crops	-0.13	0.04	-0.19	0.24	0.08	-1.32	1.01
Other Crops: stimulant; spice and aromatic crops; forage products; plants and parts of plants used primarily in perfumery, pharmacy, or for insecticidal, fungicidal or similar purposes; beet seeds (excluding sugar beet seeds) and seeds of forage plants; natural rubber in primary forms or in plates, sheets or strip, living plants; cut flowers and flower buds; flower seeds, unmanufactured tobacco; other raw vegetable materials nec	0.12	-1.45	5.97	-1.87	-3.47	-4.02	-2.83
Cattle: bovine animals, live, other ruminants, horses and other equines, bovine semen	-0.06	0.59	-0.12	-0.24	0.39	-0.61	0.13
Other Animal Products: swine; poultry; other live animals; eggs of hens or other birds in shell, fresh; reproductive materials of animals; natural honey; snails, fresh, chilled, frozen, dried, salted or in brine, except sea snails; edible products of animal origin n.e.c.; hides, skins and furskins, raw; insect waxes and spermaceti, whether or not refined or coloured	-0.16	-0.19	0.02	0.22	0.68	1.15	0.1
Raw milk	-0.15	-1.42	0	0	-0.45	-1.03	-0.13
Wool: wool, silk, and other raw animal materials used in textile	-0.33	15.94	58.18	2.54	67.34	-5.06	4.44
Forestry: forestry, logging and related service activities	0.48	5.53	0.21	-0.36	0.02	0.2	-0.38
Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing	-0.22	2.22	0.16	0.17	0.32	0.34	0.29
Coal: mining and agglomeration of hard coal, lignite and peat	0.04	0.01	0.05	0.05	0.62	-0.25	0.02
Oil: extraction of crude petroleum, service activities incidental to oil and gas extraction excluding surveying (part)	-0.14	-0.6	-0.08	-0.09	-0.11	-0.17	-0.16
Gas: extraction of natural gas, service activities incidental to oil and gas extraction excluding surveying (part)	-1.21	-0.65	0.23	-0.11	-0.04	-0.17	0.13
Other Mining Extraction (formerly omn): mining of metal ores; other mining and quarrying	0.77	13.08	2.01	1.83	1.46	1.64	2.92
Cattle Meat: fresh or chilled; meat of buffalo, fresh or chilled; meat of sheep, fresh or chilled; meat of goat, fresh or chilled; meat of camels and camelids, fresh or chilled; meat of horses and other equines, fresh or chilled; other meat of mammals, fresh or chilled; meat of mammals, frozen; edible offal of mammals, fresh, chilled or frozen	0.62	-2.75	-1.06	-0.7	-0.37	-1.42	-1.46

Other Meat: meat of pigs, fresh or chilled; meat of rabbits and hares, fresh or chilled; meat of poultry, fresh or chilled; meat of poultry, frozen; edible offal of poultry, fresh, chilled or frozen; other meat and edible offal, fresh, chilled or frozen; preserves and preparations of meat, meat offal or blood; flours, meals and pellets of meat or meat offal, inedible; greaves	-0.18	-1.48	-0.74	-0.23	0.92	-1.86	-0.13
Vegetable Oils: margarine and similar preparations; cotton linters; oil-cake and other residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes; animal fats	-0.98	37.4	6.54	-0.7	0.71	0.47	-0.78
Milk: dairy products	-0.18	-2.08	-0.01	-0.24	-0.55	-1.63	-0.56
Processed Rice: semi- or wholly milled, or husked	-0.21	6.67	-0.43	0.31	1.54	0.12	0.14
Sugar and molasses	0.06	16.2	-0.93	-0.25	1.44	-2.91	1.65
Other Food: prepared and preserved fish, crustaceans, molluscs and other aquatic invertebrates; prepared and preserved vegetables, pulses and potatoes; prepared and preserved fruits and nuts; wheat and meslin flour; other cereal flours; groats, meal and pellets of wheat and other cereals; other cereal grain products (including corn flakes); other vegetable flours and meals; mixes and doughs for the preparation of bakers' wares; starches and starch products; sugars and sugar syrups n.e.c.; preparations used in animal feeding; lucerne (alfalfa) meal and pellets; bakery products; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products; food products n.e.c.	-0.08	0.28	0.07	-0.13	0.26	0.69	5.49
Beverages and Tobacco products	7.63	9.11	-3.14	-4.33	-5.09	-10.09	-4.5
Manufacture of textiles	0.04	-6.27	-0.97	-1.21	-1.36	-1.8	-0.93
Manufacture of wearing apparel	1.67	-8.89	-1.88	-1.83	-2.23	-2.8	-3.44
Manufacture of leather and related products	-0.45	-8.99	4.68	-1.61	1.66	-1.01	-1.9
Lumber: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	0.82	-0.18	-0.22	-0.16	-0.14	0.61	-0.68
Paper & Paper Products: includes printing and reproduction of recorded media	0.2	-2.66	-0.28	-0.33	-0.27	0.38	-0.68
Petroleum & Coke: manufacture of coke and refined petroleum products	0.21	-1.02	0.37	-0.06	0.06	0.85	-0.32
Manufacture of chemicals and chemical products	0.31	-1.8	1.11	4.13	4.97	4.24	0.08
Manufacture of pharmaceuticals, medicinal chemical and botanical products	-1.2	-3.51	-0.48	-0.54	-0.35	-0.34	-0.56
Manufacture of rubber and plastics products	0.73	-2.63	-0.38	-0.27	-0.08	-0.23	-0.6
Manufacture of other non-metallic mineral products	1.41	-0.14	0.08	0.18	-0.41	2.03	0.21
Iron & Steel: basic production and casting	1.55	-2.53	-0.2	-0.19	0.82	-0.93	-0.3
Non-Ferrous Metals: production and casting of copper, aluminium, zinc, lead, gold, and silver	3.15	2.57	1.26	2.22	6.93	3.76	1.21
Manufacture of fabricated metal products, except machinery and equipment	1.57	-3.53	-0.24	-0.24	-0.37	-1.08	-0.71

Manufacture of computer, electronic and optical products	0.54	-6.39	-0.79	-0.92	-0.8	0.09	-1.26
Manufacture of electrical equipment	1.56	-5.58	-1.93	-1.3	9.6	-3.28	-1.3
Manufacture of machinery and equipment n.e.c.	1.34	-6.09	-0.91	-0.3	-0.07	-0.41	-1.92
Manufacture of motor vehicles, trailers and semi-trailers	0.9	-3.31	-0.42	-0.16	-0.39	-0.76	-0.7
Manufacture of other transport equipment	0.4	-4.43	-0.77	-1.65	-2.58	27.53	-1.29
Other Manufacturing: includes furniture	2.69	7.8	-1.23	-0.71	-0.64	-1.69	-2.79
Electricity; steam and air conditioning supply	0.37	0.35	0.13	0.21	0.11	0.23	0.28
Gas manufacture, distribution	0.33	0.36	-0.77	-1.46	0.07	-1.69	-0.39

Market Prices

The results with respect to market prices are given in table 4. With respect to India, it is seen that though there may have been a fall in the production of agriculture and food processing products, there possibly may be an overall positive impact on the market prices for these products, i.e. they may perhaps be sold at higher prices. A few possible reasons may be driving this. A possible increase in the Indian manufacturing base, leading to higher employment at possibly higher wages may lead to a greater demand for food products leading to higher prices. Also simultaneously, the possibly bidding away of workers from agriculture into manufacturing, perhaps leading to a fall in the total agricultural workers, may be driving up wages in agriculture.

The positive impact on market prices may also be seen in manufacturing as across the board, with respect to India, there is a possible increase in the market prices of manufacturing products. This holds true for the labour-intensive industries such as textiles, capital intensive industries such as electrical equipment, and technology intensive industries such as computer and electronics. One industry where there may be a decline in market prices is the chemicals and chemical products industry.

One reason for this maybe that many products within this industry have oil/gas as the feedstock/major raw material. GCC countries, being major producers of oil/gas may be benefitting from this and increasing their production and exports to India, leading to a possible large increase in production/output available for consumption, possibly leading to a fall in market prices. But as is seen, this fall in India's case is quite small (-0.05%) and the benefits for the same may be reaped by other industries.

The rise in market prices is also seen for the GCC countries, possibly indicating similar pathways at work in terms of boosting the manufacturing industry.

In summary, the positive impact that may be seen in the increases in production, may also be seen in the increase in market prices for the goods being produced. There may be an increase in the market prices for both agriculture/food products and industrial goods.

Manufacture of computer, electronic and optical products	0.54	-6.39	-0.79	-0.92	-0.8	0.09	-1.26
Manufacture of electrical equipment	1.56	-5.58	-1.93	-1.3	9.6	-3.28	-1.3
Manufacture of machinery and equipment n.e.c.	1.34	-6.09	-0.91	-0.3	-0.07	-0.41	-1.92
Manufacture of motor vehicles, trailers and semi-trailers	0.9	-3.31	-0.42	-0.16	-0.39	-0.76	-0.7
Manufacture of other transport equipment	0.4	-4.43	-0.77	-1.65	-2.58	27.53	-1.29
Other Manufacturing: includes furniture	2.69	7.8	-1.23	-0.71	-0.64	-1.69	-2.79
Electricity; steam and air conditioning supply	0.37	0.35	0.13	0.21	0.11	0.23	0.28
Gas manufacture, distribution	0.33	0.36	-0.77	-1.46	0.07	-1.69	-0.39

Market Prices

The results with respect to market prices are given in table 4. With respect to India, it is seen that though there may have been a fall in the production of agriculture and food processing products, there possibly may be an overall positive impact on the market prices for these products, i.e. they may perhaps be sold at higher prices. A few possible reasons may be driving this. A possible increase in the Indian manufacturing base, leading to higher employment at possibly higher wages may lead to a greater demand for food products leading to higher prices. Also simultaneously, the possibly bidding away of workers from agriculture into manufacturing, perhaps leading to a fall in the total agricultural workers, may be driving up wages in agriculture.

The positive impact on market prices may also be seen in manufacturing as across the board, with respect to India, there is a possible increase in the market prices of manufacturing products. This holds true for the labour-intensive industries such as textiles, capital intensive industries such as electrical equipment, and technology inten-

-sive industries such as computer and electronics. One industry where there may be a decline in market prices is the chemicals and chemical products industry. One reason for this maybe that many products within this industry have oil/gas as the feedstock/major raw material. GCC countries, being major producers of oil/gas may be benefitting from this and increasing their production and exports to India, leading to a possible large increase in production/output available for consumption, possibly leading to a fall in market prices. But as is seen, this fall in India's case is quite small (-0.05%) and the benefits for the same may be reaped by other industries.

The rise in market prices is also seen for the GCC countries, possibly indicating similar pathways at work in terms of boosting the manufacturing industry.

In summary, the positive impact that may be seen in the increases in production, may also be seen in the increase in market prices for the goods being produced. There may be an increase in the market prices for both agriculture/food products and industrial goods.

Table 4: Change in Market Prices (Agriculture and Manufacturing), India and GCC Countries (% change)

Industry	India	UAE	Saudi Arabia	Qatar	Kuwait	Oman	Bahrain
Rice: seed, paddy (not husked)	0.2	-6.36	-1.15	0.35	-1.46	0.7	0.03
Wheat: seed, other	0.21	-0.97	0.27	0.31	0.17	0.49	0.16
Other Grains: maize (corn), sorghum, barley, rye, oats, millets, other cereals	0.24	-6.38	0.21	0.32	0.02	0.63	0.05
Veg & Fruit: vegetables, fruit and nuts, edible roots and tubers, pulses	0.24	0.98	0.25	0.32	0.21	1.02	0.04
Oil Seeds: oil seeds and oleaginous fruit	0.07	-0.09	-0.02	-0.02	-0.49	0.06	-0.44
Cane & Beet: sugar crops	0.35	0.03	-0.01	0	-0.01	0.09	0
Fibres crops	0.22	-0.02	-0.01	-0.08	-0.03	0.02	-0.46
Other Crops: stimulant; spice and aromatic crops; forage products; plants and parts of plants used primarily in perfumery, pharmacy, or for insecticidal, fungicidal or similar purposes; beet seeds (excluding sugar beet seeds) and seeds of forage plants; natural rubber in primary forms or in plates, sheets or strip, living plants; cut flowers and flower buds; flower seeds, unmanufactured tobacco; other raw vegetable materials nec	0.28	0.31	-1.14	0.19	-0.21	0.63	-0.14
Cattle: bovine animals, live, other ruminants, horses and other equines, bovine semen	0.32	0.11	0.16	0.25	-0.02	0.31	0
Other Animal Products: swine; poultry; other live animals; eggs of hens or other birds in shell, fresh; reproductive materials of animals; natural honey; snails, fresh, chilled, frozen, dried, salted or in brine, except sea snails; edible products of animal origin n.e.c.; hides, skins and furskins, raw; insect waxes and spermaceti, whether or not refined or coloured	0.25	0.46	0.17	0.15	-0.01	0.35	-0.02
Raw milk	0.23	0.46	0.15	0.24	-0.13	0.32	0
Wool: wool, silk, and other raw animal materials used in textile	0.32	-0.66	-0.04	-0.28	-0.11	-0.03	-0.45
Forestry: forestry, logging and related service activities	0.67	5	-0.02	-0.27	-0.18	0.4	-0.21
Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing	0	6.55	0.43	0.66	0.69	1.53	0.84
Coal: mining and agglomeration of hard coal, lignite and peat	0.59	0.09	0.1	0.06	0.11	0.01	0.06
Oil: extraction of crude petroleum, service activities incidental to oil and gas extraction excluding surveying (part)	0.21	0.21	0.15	0.16	0.15	0.16	0.04
Gas: extraction of natural gas, service activities incidental to oil and gas extraction excluding surveying (part)	-1.77	-0.03	0.76	0.13	0.24	0.16	0.6
Other Mining Extraction (formerly omn): mining of metal ores; other mining and quarrying	-0.74	8.8	1.13	1.11	0.89	1.17	1.58
Cattle Meat: fresh or chilled; meat of buffalo, fresh or chilled; meat of sheep, fresh or chilled; meat of goat, fresh or chilled; meat of camels and camelids, fresh or chilled; meat of horses and other equines, fresh or chilled; other meat of mammals, fresh or chilled; meat of mammals, frozen; edible offal of mammals, fresh, chilled or frozen	0.36	0.92	0.14	0.11	0	-0.05	-0.04
Other Meat: meat of pigs, fresh or chilled; meat of rabbits and hares, fresh or chilled; meat of poultry, fresh or chilled; meat of poultry, frozen; edible offal of poultry, fresh, chilled or frozen; other meat and edible offal, fresh, chilled or frozen; preserves and preparations of meat, meat offal or blood; flours, meals and pellets of meat or meat offal, inedible; greaves	0.29	0.48	0.3	0.24	0.01	0.56	0.17

Vegetable Oils: margarine and similar preparations; cotton linters; oil-cake and other residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes; animal fats	0.36	-1.16	0.18	0.14	-0.21	0.2	0.09
Milk: dairy products	0.32	0.5	0.16	0.22	0.1	0.37	0.2
Processed Rice: semi- or wholly milled, or husked	0.29	-1.38	0.13	0.22	-0.33	-0.11	0.19
Sugar and molasses	0.43	-1.15	0.12	-0.13	-0.35	0.48	-0.22
Other Food: prepared and preserved fish, crustaceans, molluscs and other aquatic invertebrates; prepared and preserved vegetables, pulses and potatoes; prepared and preserved fruits and nuts; wheat and meslin flour; other cereal flours; groats, meal and pellets of wheat and other cereals; other cereal grain products (including corn flakes); other vegetable flours and meals; mixes and doughs for the preparation of bakers' wares; starches and starch products; sugars and sugar syrups n.e.c.; preparations used in animal feeding; lucerne (alfalfa) meal and pellets; bakery products; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products; food products n.e.c.	0.27	1.21	0.25	0.18	0.13	0.19	0.16
Beverages and Tobacco products	0.38	-9.38	-0.61	-4.16	-4.01	-2.29	-5.19
Manufacture of textiles	0.31	1.2	0.24	0.27	0.06	0.42	0.1
Manufacture of wearing apparel	0.35	1.58	0.26	0.35	0.23	0.62	0.31
Manufacture of leather and related products	0.35	2.23	0.31	0.39	0.5	0.86	0.36
Lumber: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	0.46	1.84	0.29	0.35	0.26	0.62	0.32
Paper & Paper Products: includes printing and reproduction of recorded media	0.32	1.07	0.22	0.25	0.21	0.45	0.26
Petroleum & Coke: manufacture of coke and refined petroleum products	0.16	0.65	0.27	0.24	0.2	0.17	0.11
Manufacture of chemicals and chemical products	-0.05	1.12	0.28	0.27	0.25	0.24	0.35
Manufacture of pharmaceuticals, medicinal chemical and botanical products	0.35	1.7	0.32	0.34	0.32	0.4	0.37
Manufacture of rubber and plastics products	0.18	1.54	0.31	0.32	0.31	0.36	0.37
Manufacture of other non-metallic mineral products	0.06	1.53	0.35	0.41	0.58	0.43	0.44
Iron & Steel: basic production and casting	0.12	1.26	0.26	0.32	0.17	0.25	0.32
Non-Ferrous Metals: production and casting of copper, aluminium, zinc, lead, gold, and silver	-0.61	1.2	0.32	0.31	0.35	0.51	0.41
Manufacture of fabricated metal products, except machinery and equipment	-0.09	1.24	0.28	0.34	0.21	0.42	0.28
Manufacture of computer, electronic and optical products	0.1	1.16	0.28	0.28	0.2	0.38	0.32
Manufacture of electrical equipment	0.04	1.17	0.26	0.32	0.08	0.31	0.26
Manufacture of machinery and equipment n.e.c.	0.16	1.47	0.28	0.35	0.07	0.36	0.28
Manufacture of motor vehicles, trailers and semi-trailers	0.19	1.17	0.27	0.32	0.15	0.25	0.2
Manufacture of other transport equipment	0.17	1.48	0.3	0.31	0.38	0.23	0.27
Other Manufacturing: includes furniture	-0.25	0.79	0.26	0.26	0.22	0.44	0.3
Electricity; steam and air conditioning supply	0.32	0.48	0.05	0.2	0.21	0.17	0.55
Gas manufacture, distribution	0.57	1.92	0.46	0.3	0.2	0.41	0.34

Exports

The results with respect to exports are given in tables 5 and 6. Table 5 looks at the possible impact of the agreement on total exports of all products. Table 6 looks at the possible impact on total exports of all products to only GCC countries.

In table 5, with respect to exports of India across the different industries, it may be seen that in some cases, there may be an increase in exports of agriculture/food products. The same may be seen in exports of vegetables & fruits, animal products, fishing (marine products), cattle and other meat products, milk products and beverages and tobacco which registered the higher increase in exports. This may be due to an overall reduction in tariffs in the GCC countries. This may underline the possible benefits the food processing industry may reap with a possible FTA with GCC countries.

Exports across the manufacturing industry is also seen with exports (more or less) across all manufacturing industry may be increasing. A possible reason for this may be reduction in tariffs, particularly for industrial goods in GCC countries. This may stimulate production, leading to an increase in production and a higher surplus which may be exported. Firms may also possibly increase production for the sole reason for exporting the products.

What may be seen is an increase in the exports of agriculture/food products from the GCC countries. It may be mentioned that, this refers to all exports from GCC countries and not those only to India. Further, the impact of these numbers may also be ignored as they may possibly to a certain degree be contingent on Indian reducing its agricultural duties, which in general in negotiations, it does not, as it is

considered a sensitive product. It may also be mentioned that the exercise undertaken here did not take into account the strict ROO requirements with respect to agriculture trade (with respect to a possible FTA) and that may also be driving these results.

With respect to India's exports to GCC countries (table 6), it may be seen that the proposed impact on India's exports to GCC countries, on the whole, across both agriculture/food products and manufacturing may be positive. In some cases, the possible growth in exports may be quite large. With respect to agriculture/food products, it is seen that across all the different categories (other grains, vegetables & fruits, oil seeds, animal products, milk products, wool, beverages & tobacco, meat products) the estimated possible net positive gains are quite large.

The same, as may be seen, also holds true for the manufacturing industry as a whole. It may be mentioned that, though there may be a fall in the prices of chemical products (as seen under market prices), this may not impact its exports to GCC countries. The possible growth and range of possible growth of chemical products may be high (range of 20 to 40 percent, across all the GCC countries). The possible net positive gain in exports may be seen in labour intensive products (textiles, leather, etc.), basic/building block industries such as iron and steel and also technology and capital-intensive products such as motor vehicles, electronics, electrical equipment etc.

In summary, overall, based on the results given, it may be said that India's exports in total and India's exports to the GCC countries may possibly increase post a possible FTA between India and GCC countries.

Table 5: Change in Exports (Agriculture and Manufacturing), India and GCC Countries (% change)

Industry	India	UAE	Saudi Arabia	Qatar	Kuwait	Oman	Bahrain
Rice: seed, paddy (not husked)	-0.53	78.97	10.62	-3.78	14.27	-6.93	-0.56
Wheat: seed, other	-0.25	7.74	-2.44	-2.61	-1.46	-3.37	-1.5
Other Grains: maize (corn), sorghum, barley, rye, oats, millets, other cereals	-0.17	16.95	-0.67	-0.86	-0.08	-1.74	-0.14
Veg & Fruit: vegetables, fruit and nuts, edible roots and tubers, pulses	1.66	1	1.51	2.29	-0.38	22.01	3.42
Oil Seeds: oil seeds and oleaginous fruit	0.12	0.48	-0.3	-0.12	1.85	1.53	1.84
Cane & Beet: sugar crops	-1.93	-0.5	6.53	-0.19	-0.1	-0.8	-0.03
Fibres crops	-0.7	0.04	-0.31	0.31	0.07	-0.2	1.18
Other Crops: stimulant; spice and aromatic crops; forage products; plants and parts of plants used primarily in perfumery, pharmacy, or for insecticidal, fungicidal or similar purposes; beet seeds (excluding sugar beet seeds) and seeds of forage plants; natural rubber in primary forms or in plates, sheets or strip, living plants; cut flowers and flower buds; flower seeds, unmanufactured tobacco; other raw vegetable materials nec	1.5	-1.62	6.54	-1.42	-3.67	-4.18	-3.95
Cattle: bovine animals, live, other ruminants, horses and other equines, bovine semen	-0.84	0.06	-0.51	-1.04	-0.39	-1.37	-0.34
Other Animal Products: swine; poultry; other live animals; eggs of hens or other birds in shell, fresh; reproductive materials of animals; natural honey; snails, fresh, chilled, frozen, dried, salted or in brine, except sea snails; edible products of animal origin n.e.c.; hides, skins and furskins, raw; insect waxes and spermaceti, whether or not refined or coloured	0.85	-1.04	0.78	1.77	0.69	3.07	0.75
Raw milk	-1.52	-3.21	-0.93	-1.59	1.21	-2.2	0.13
Wool: wool, silk, and other raw animal materials used in textile	-0.42	16.04	58.68	3.32	68.38	-4.82	5.42
Forestry: forestry, logging and related service activities	-1.86	6.41	1.53	1.2	0.46	-2.42	0.93
Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing	0.25	4.12	2.66	-0.98	-1.55	0.75	-2.01
Coal: mining and agglomeration of hard coal, lignite and peat	-1.51	0	0.06	0.05	0.68	0.33	0.04
Oil: extraction of crude petroleum, service activities incidental to oil and gas extraction excluding surveying (part)	-1.03	-0.57	-0.2	-0.1	-0.17	-0.36	0.66
Gas: extraction of natural gas, service activities incidental to oil and gas extraction excluding surveying (part)	82.27	3.1	-20.89	-0.17	-5.51	-2	-16.56
Other Mining Extraction (formerly omn): mining of metal ores; other mining and quarrying	2.97	16.3	11.79	5.69	-0.16	2.01	3.74
Cattle Meat: fresh or chilled; meat of buffalo, fresh or chilled; meat of sheep, fresh or chilled; meat of goat, fresh or chilled; meat of camels and camelids, fresh or chilled; meat of horses and other equines, fresh or chilled; other meat of mammals, fresh or chilled; meat of mammals, frozen; edible offal of mammals, fresh, chilled or frozen	2.53	-8.31	-2.19	-0.86	-0.43	-0.03	0.06
Other Meat: meat of pigs, fresh or chilled; meat of rabbits and hares, fresh or chilled; meat of poultry, fresh or chilled; meat of poultry, frozen; edible offal of poultry, fresh, chilled or frozen; other meat and edible offal, fresh, chilled or frozen; preserves and preparations of meat, meat offal or blood; flours, meals and pellets of meat or meat offal, inedible; greaves	5.81	-2.61	-1.29	-2.24	0.99	-3.3	-1.41

Vegetable Oils: margarine and similar preparations; cotton linters; oil-cake and other residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes; animal fats	-1.58	37.42	7.26	-1.07	0.72	0.81	-0.49
Milk: dairy products	9.95	-2.41	0.07	-1.53	-0.58	-2.45	-0.97
Processed Rice: semi- or wholly milled, or husked	-0.81	6.65	-0.62	-1	1.53	0.63	-0.84
Sugar and molasses	-2.08	16.21	-0.93	0.52	1.45	-2.78	0.36
Other Food: prepared and preserved fish, crustaceans, molluscs and other aquatic invertebrates; prepared and preserved vegetables, pulses and potatoes; prepared and preserved fruits and nuts; wheat and meslin flour; other cereal flours; groats, meal and pellets of wheat and other cereals; other cereal grain products (including corn flakes); other vegetable flours and meals; mixes and doughs for the preparation of bakers' wares; starches and starch products; sugars and sugar syrups n.e.c.; preparations used in animal feeding; lucerne (alfalfa) meal and pellets; e.c.	-0.06	-1.96	1.22	-0.45	0.16	0.76	9.13
Beverages and Tobacco products	206.81	22.06	-7.42	-1.63	-9.15	-21.03	-10.91
Manufacture of textiles	-0.31	-5.98	0.81	-0.64	-0.9	-2.18	-0.26
Manufacture of wearing apparel	4.65	-8.98	-3.28	0.55	-3.32	-4.56	-4.53
Manufacture of leather and related products	-0.57	-11.32	46.19	-1.03	18.66	-6.58	-2.68
Lumber: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	1.15	-7.81	-0.23	-2.22	-0.24	3.22	1.18
Paper & Paper Products: includes printing and reproduction of recorded media	3.16	-2.34	-0.26	-1.91	-0.91	1.07	-1.05
Petroleum & Coke: manufacture of coke and refined petroleum products	1.12	-0.75	0.7	-0.49	-0.38	2.17	-0.4
Manufacture of chemicals and chemical products	3.05	-2.21	1.53	5.22	5.83	5.07	0.75
Manufacture of pharmaceuticals, medicinal chemical and botanical products	-2.2	-9.65	-0.7	-1.78	-1	-1.66	-2.38
Manufacture of rubber and plastics products	2.26	-6.99	-0.83	1.08	-1	-0.65	-0.96
Manufacture of other non-metallic mineral products	4.95	-0.52	1.81	-1.38	-2.01	4.22	1.17
Iron & Steel: basic production and casting	3.4	-2.55	0.75	-1.3	6.37	-1.22	0.11
Non-Ferrous Metals: production and casting of copper, aluminium, zinc, lead, gold, and silver	9.14	2.81	1.42	3.37	9.06	4.08	1.25
Manufacture of fabricated metal products, except machinery and equipment	6.63	-5.45	0.1	10.28	-1.42	-2.67	-1.5
Manufacture of computer, electronic and optical products	-0.39	-7.54	-2.37	-2.23	-1.75	-2.81	-2.67
Manufacture of electrical equipment	5.53	-5.8	-2.78	-1.86	20.6	-3.67	-0.38
Manufacture of machinery and equipment n.e.c.	3.22	-9.02	-1.21	-2.63	3.29	-0.82	-2.35
Manufacture of motor vehicles, trailers and semi-trailers	0.73	-4.73	-1.57	8.98	-0.61	-1.25	-1.16
Manufacture of other transport equipment	1.83	-4.16	-2.26	-2.71	-3.33	36.12	-2.26
Other Manufacturing: includes furniture	7.99	11.01	-7.01	4.44	-0.81	-3.51	-4.86
Electricity; steam and air conditioning supply	-1.79	-2.58	-0.25	-1.04	-1.14	-0.92	-3
Gas manufacture, distribution	-3.01	-10	-2.38	-1.5	-0.94	-2.12	-1.75

Table 6: Change in Exports (Agriculture and Manufacturing), India to GCC Countries (% change)

Industry	UAE	Saudi Arabia	Qatar	Kuwait	Oman	Bahrain
Rice: seed, paddy (not husked)	-7.95	-2.85	-0.62	-1.78	-8	-0.73
Wheat: seed, other	-0.4	-1.93	-1.12	-1.46	-1.48	0.12
Other Grains: maize (corn), sorghum, barley, rye, oats, millets, other cereals	3.47	-0.58	0.27	-0.14	-0.97	2.75
Veg & Fruit: vegetables, fruit and nuts, edible roots and tubers, pulses	7.68	8.26	2.35	3.63	3.83	3.26
Oil Seeds: oil seeds and oleaginous fruit	44.1	2.13	-0.15	21	-0.18	22.14
Cane & Beet: sugar crops	13.24	-2.82	-2.27	-2	-1.7	-0.36
Fibres crops	11.82	22.56	9.87	24.21	19.97	15.54
Other Crops: stimulant; spice and aromatic crops; forage products; plants and parts of plants used primarily in perfumery, pharmacy, or for insecticidal, fungicidal or similar purposes; beet seeds (excluding sugar beet seeds) and seeds of forage plants; natural rubber in primary forms or in plates, sheets or strip, living plants; cut flowers and flower buds; flower seeds, unmanufactured tobacco; other raw vegetable materials nec	14.98	58.93	15.88	5.34	22.4	21.77
Cattle: bovine animals, live, other ruminants, horses and other equines, bovine semen	-1.45	-2.07	-1.43	-1.09	-1.49	-1.82
Other Animal Products: swine; poultry; other live animals; eggs of hens or other birds in shell, fresh; reproductive materials of animals; natural honey; snails, fresh, chilled, frozen, dried, salted or in brine, except sea snails; edible products of animal origin n.e.c.; hides, skins and furskins, raw; insect waxes and spermaceti, whether or not refined or coloured	15.32	7.26	13.08	3.31	3.59	4.39
Raw milk	0.74	-1.01	-0.49	-1.95	-0.64	-1.35
Wool: wool, silk, and other raw animal materials used in textile	54.01	73.85	59.9	67.22	54.64	73.97
Forestry: forestry, logging and related service activities	19.37	19.38	16.36	20.01	33.5	19.41
Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing	8.61	1.26	5.03	1.32	3.31	4.89
Coal: mining and agglomeration of hard coal, lignite and peat	31.3	31.05	30.58	31.37	31.63	30.46
Oil: extraction of crude petroleum, service activities incidental to oil and gas extraction excluding surveying (part)	-1.56	-0.47	-0.82	-0.73	0.15	-1.35
Gas: extraction of natural gas, service activities incidental to oil and gas extraction excluding surveying (part)	92.7	112.52	894.95	94.75	92.01	979.92
Other Mining Extraction (formerly omn): mining of metal ores; other mining and quarrying	12.8	12.02	12.3	16.64	13.32	12.79
Cattle Meat: fresh or chilled; meat of buffalo, fresh or chilled; meat of sheep, fresh or chilled; meat of goat, fresh or chilled; meat of camels and camelids, fresh or chilled; meat of horses and other equines, fresh or chilled; other meat of mammals, fresh or chilled; meat of mammals, frozen; edible offal of mammals, fresh, chilled or frozen	14.1	22.48	16.66	15.78	25.9	25.88

Other Meat: meat of pigs, fresh or chilled; meat of rabbits and hares, fresh or chilled; meat of poultry, fresh or chilled; meat of poultry, frozen; edible offal of poultry, fresh, chilled or frozen; other meat and edible offal, fresh, chilled or frozen; preserves and preparations of meat, meat offal or blood; flours, meals and pellets of meat or meat offal, inedible; greaves	46.3 7	45.8	47.31	47.48	51.72	51.16
Vegetable Oils: margarine and similar preparations; cotton linters; oil-cake and other residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes; animal fats	35.0 2	20.14	11.72	3.2	2.1	25.03
Milk: dairy products	39.4 8	40.42	39.91	40.5	41.5	39.84
Processed Rice: semi- or wholly milled, or husked	2.9	-1.49	-0.6	-0.66	-2.33	1.54
Sugar and molasses	1.22	-0.46	-1.7	-1.87	-0.57	-0.25
Other Food: prepared and preserved fish, crustaceans, molluscs and other aquatic invertebrates; prepared and preserved vegetables, pulses and potatoes; prepared and preserved fruits and nuts; wheat and meslin flour; other cereal flours; groats, meal and pellets of wheat and other cereals; other cereal grain products (including corn flakes); other vegetable flours and meals; mixes and doughs for the preparation of bakers' wares; starches and starch products; sugars and sugar syrups n.e.c.; preparations used in animal feeding; lucerne (alfalfa) meal and pellets; bakery products; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products; food products n.e.c.	12.2 3	17.82	11.37	13.48	19.88	12.51
Beverages and Tobacco products	769. 62	1490.4 2	856.4 7	1097.5 4	456.5 3	1040.49
Manufacture of textiles	33.4 9	38.37	38.74	36.8	40.44	35.1
Manufacture of wearing apparel	26.1 4	35.89	36.28	35.78	42.06	35.41
Manufacture of leather and related products	44.1 2	42.86	43.16	43.12	53.85	42.04
Lumber: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	44.5 4	35.72	36.3	33.87	41.87	33.79
Paper & Paper Products: includes printing and reproduction of recorded media	26.4 6	27.99	26.57	25.49	29.8	26.97
Petroleum & Coke: manufacture of coke and refined petroleum products	18.5 4	18.69	22.09	22.47	13.97	21.94
Manufacture of chemicals and chemical products	39.2	20.06	23.38	26.97	40.81	38
Manufacture of pharmaceuticals, medicinal chemical and botanical products	2.79	1.64	2.99	0.09	2.19	1.66
Manufacture of rubber and plastics products	39.8 9	37.12	36.48	37.8	40.63	37.42
Manufacture of other non-metallic mineral products	36.6 2	32.29	33.5	33.87	36.71	34.87
Iron & Steel: basic production and casting	31.2 1	32.03	32.68	32.57	32.1	32.42
Non-Ferrous Metals: production and casting of copper, aluminium, zinc, lead, gold, and silver	11.0 3	65.69	54.62	66.36	65.9	63.27
Manufacture of fabricated metal products, except machinery and equipment	45.3 8	44.32	43.93	44.83	45.94	45.05
Manufacture of computer, electronic and optical products	2.68	12.55	12.23	7.84	34.82	8.2

Manufacture of electrical equipment	41.5	46.79	44.23	45.34	49.58	48.51
Manufacture of machinery and equipment n.e.c.	41.9 2	42.29	44.44	35.81	44.8	40.94
Manufacture of motor vehicles, trailers and semi-trailers	31.0 1	29.99	30.29	29.85	29.91	29.39
Manufacture of other transport equipment	5.97	51.2	50.19	50.52	47.19	49.53
Other Manufacturing: includes furniture	30.8 4	47.29	42.69	47.12	50.4	48.43
Electricity; steam and air conditioning supply	0.06	-0.57	-1	-1.18	-1.1	-0.37
Gas manufacture, distribution	3.58	-2.11	-1.19	-2.73	-1.79	-3.01

Imports

The figures with respect to imports are given in tables 7 and 8. Table 7 refers to the possible change in total imports across all industries for India and GCC countries. Table 8 refers to the possible change in imports into India from GCC countries.

The possible rise in imports for agriculture/food products in the context of India may be ignored as it was mentioned before, the exercise undertaken here did not take into account the strict ROO requirements in agriculture and that may be driving the results.

However, it in the context of imports in the manufacturing industry, with respect to India (table 7), it may be seen that imports may possibly increase. Two possible reasons may be driving this. One being, consumption is a major component of India's GDP and the reduction of tariffs may be stimulating demand for industrial products/consumer goods.

Another reason may be that there may be an increase in the trade of intermediate goods across the entire manufacturing industry. It may be possible, given the rise in exports from India, Indian manufacturers may be importing certain intermediates, particularly from GCC,

taking into account the lower/zero duties, doing value addition and then exporting back to GCC countries or to the rest of the World. It may also be seen that imports may also be increasing across the GCC countries too, maybe on account of increased consumption and/or higher trade in intermediates.

With respect to India's imports from GCC countries (table 8), the possible rise in imports in agriculture may be ignored as it may be contingent on India reducing its duties on agriculture products to very low/zero levels across the board and agriculture as a whole is deemed sensitive for India and it has strict rules of origin requirements with respect to agriculture products.

However, it may be seen that imports are also rising in the manufacturing industry also. As mentioned with respect to rise in total imports, increased consumption and increase in imports of intermediates may be driving this.

In summary, though imports may be increasing, some of it may be driven by increased consumption and rise in imports of intermediate products from GCC countries possibly on account of lower duties on imports from GCC countries (due to preferential access).

Table 7: Change in Imports (Agriculture and Manufacturing), India and GCC Countries (% change)

Industry	India	UAE	Saudi Arabia	Qatar	Kuwait	Oman	Bahrain
Rice: seed, paddy (not husked)	0.99	-5.95	-0.69	1.39	0.39	10.31	0.55
Wheat: seed, other	0.6	1.27	-0.06	0.56	0.29	0.3	1.88
Other Grains: maize (corn), sorghum, barley, rye, oats, millets, other cereals	0.28	3.12	0.1	0.38	0.38	0.83	0.57
Veg & Fruit: vegetables, fruit and nuts, edible roots and tubers, pulses	0.75	1.95	0.48	0.46	0.45	0.53	0.23
Oil Seeds: oil seeds and oleaginous fruit	-0.53	14.67	0.79	-0.38	0.34	0.29	2.72
Cane & Beet: sugar crops	1.09	15.56	-0.75	-0.27	0.07	0.29	1.73
Fibres crops	0.41	-3.61	0.06	-0.88	-0.44	2.45	-0.41
Other Crops: stimulant; spice and aromatic crops; forage products; plants and parts of plants used primarily in perfumery, pharmacy, or for insecticidal, fungicidal or similar purposes; beet seeds (excluding sugar beet seeds) and seeds of forage plants; natural rubber in primary forms or in plates, sheets or strip, living plants; cut flowers and flower buds; flower seeds, unmanufactured tobacco; other raw vegetable materials nec	1.37	2.49	-1.56	-1.2	-0.26	-0.4	0
Cattle: bovine animals, live, other ruminants, horses and other equines, bovine semen	1.77	-0.48	-0.58	-0.15	0.26	-0.13	-0.49
Other Animal Products: swine; poultry; other live animals; eggs of hens or other birds in shell, fresh; reproductive materials of animals; natural honey; snails, fresh, chilled, frozen, dried, salted or in brine, except sea snails; edible products of animal origin n.e.c.; hides, skins and furskins, raw; insect waxes and spermaceti, whether or not refined or coloured	0.44	4.43	0.37	0.33	0.5	0.84	0.19
Raw milk	0.8	1.87	0.37	0.63	-0.58	0.74	0.03
Wool: wool, silk, and other raw animal materials used in textile	1.81	1.45	2.22	0.5	1.37	0.55	0.24
Forestry: forestry, logging and related service activities	2.31	0.6	0	0.07	0.12	-0.62	-0.47
Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing	3.49	6.06	0.44	0.48	1.21	1.47	0.92
Coal: mining and agglomeration of hard coal, lignite and peat	1.31	-0.14	0.35	-0.04	0.06	0.57	-0.28
Oil: extraction of crude petroleum, service activities incidental to oil and gas extraction excluding surveying (part)	0.27	-0.48	0.51	0.22	0.26	1.08	-0.72
Gas: extraction of natural gas, service activities incidental to oil and gas extraction excluding surveying (part)	1.11	0.15	13.58	1.75	2.12	2.49	10.44
Other Mining Extraction (formerly omn): mining of metal ores; other mining and quarrying	2.5	3.07	1.05	0.67	0.23	1.18	0.5
Cattle Meat: fresh or chilled; meat of buffalo, fresh or chilled; meat of sheep, fresh or chilled; meat of goat, fresh or chilled; meat of camels and camelids, fresh or chilled; meat of horses and other equines, fresh or chilled; other meat of mammals, fresh or chilled; meat of mammals, frozen; edible offal of mammals, fresh, chilled or frozen	1.28	2.83	2.1	0.92	0.76	1.16	0.95

Other Meat: meat of pigs, fresh or chilled; meat of rabbits and hares, fresh or chilled; meat of poultry, fresh or chilled; meat of poultry, frozen; edible offal of poultry, fresh, chilled or frozen; other meat and edible offal, fresh, chilled or frozen; preserves and preparations of meat, meat offal or blood; flours, meals and pellets of meat or meat offal, inedible; greaves	2.08	1.86	0.66	0.54	0.55	0.61	0.55
Vegetable Oils: margarine and similar preparations; cotton linters; oil-cake and other residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes; animal fats	1.85	1.6	0.39	0.8	0.65	0.65	0.97
Milk: dairy products	10.54	0.51	0.23	0.6	0.52	0.01	0.15
Processed Rice: semi- or wholly milled, or husked	3.09	3.4	-1.09	-0.28	-0.46	0.03	2.03
Sugar and molasses	4.54	1.5	0.18	0.4	0.63	0.81	2.47
Other Food: prepared and preserved fish, crustaceans, molluscs and other aquatic invertebrates; prepared and preserved vegetables, pulses and potatoes; prepared and preserved fruits and nuts; wheat and meslin flour; other cereal flours; groats, meal and pellets of wheat and other cereals; other cereal grain products (including corn flakes); other vegetable flours and meals; mixes and doughs for the preparation of bakers' wares; starches and starch products; sugars and sugar syrups n.e.c.; preparations used in animal feeding; lucerne (alfalfa) meal and pellets; bakery products; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products; food products n.e.c.	3.69	2.83	0.4	0.39	0.49	0.3	1.13
Beverages and Tobacco products	3.26	12.85	7.03	8.26	3.77	4.27	5.17
Manufacture of textiles	2	0.66	0.63	1.11	0.46	0.15	2.03
Manufacture of wearing apparel	1.49	3.41	1.12	1.14	0.59	0.34	0.95
Manufacture of leather and related products	2.23	2.16	0.71	0.67	0.37	-0.13	0.94
Lumber: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	2.5	7.68	0.92	1.19	0.99	0.35	0.66
Paper & Paper Products: includes printing and reproduction of recorded media	1.53	0.83	0.21	0.67	0.71	-0.01	0.13
Petroleum & Coke: manufacture of coke and refined petroleum products	3.81	1.87	1.05	3.21	1.05	8.48	0.43
Manufacture of chemicals and chemical products	2.21	3.8	1.18	1.59	1.49	0.86	0.8
Manufacture of pharmaceuticals, medicinal chemical and botanical products	0.23	4.04	0.53	0.84	0.87	-0.14	0.55
Manufacture of rubber and plastics products	1.75	5.29	1.01	1.38	1.01	0.36	0.77
Manufacture of other non-metallic mineral products	3.79	5.61	2.1	1.83	1.81	0.49	0.78
Iron & Steel: basic production and casting	2.64	3.35	1.4	1.48	0.91	0.63	1.01
Non-Ferrous Metals: production and casting of copper, aluminium, zinc, lead, gold, and silver	2.55	1.31	-0.04	1.38	1.31	0.94	0.32
Manufacture of fabricated metal products, except machinery and equipment	1.82	3.73	1.64	2.03	1.01	0.92	1.24
Manufacture of computer, electronic and optical products	1.25	0.98	0.58	0.22	0.43	0.09	0.45
Manufacture of electrical equipment	1.72	0.64	0.36	0.31	0.92	0.21	0.41
Manufacture of machinery and equipment n.e.c.	1.92	2.05	0.75	1.66	0.69	0.14	0.51

Manufacture of motor vehicles, trailers and semi-trailers	2.01	1.51	0.77	0.8	0.28	0.24	0.4
Manufacture of other transport equipment	1.65	1.65	0.38	0.34	0.5	2.02	0.35
Other Manufacturing: includes furniture	10.02	5.03	0.55	1.53	0.45	0.1	0.02
Electricity; steam and air conditioning supply	1.26	1.89	1.26	0.8	0.64	0.72	1.46
Gas manufacture, distribution	1.66	6.83	1.04	1.87	0.34	1.37	0.09

Table 8: Change in Imports (Agriculture and Manufacturing), from GCC countries to India (% change)

Industry	UAE	Saudi Arabia	Qatar	Kuwait	Oman	Bahrain
Rice: seed, paddy (not husked)	95.45	13.04	-2.9	16.7	-6.2	0.28
Wheat: seed, other	9.65	-1.88	-2.16	-0.94	-3.78	-0.92
Other Grains: maize (corn), sorghum, barley, rye, oats, millets, other cereals	18.97	-0.33	-0.61	0.17	-1.4	0.1
Veg & Fruit: vegetables, fruit and nuts, edible roots and tubers, pulses	152.5	161.13	160.18	161.24	154.64	162.9
Oil Seeds: oil seeds and oleaginous fruit	42.04	-0.76	-0.77	1.54	-1.12	1.33
Cane & Beet: sugar crops	0.71	0.91	0.87	0.96	0.41	0.88
Fibres crops	0.43	0.34	0.72	0.47	0.18	2.64
Other Crops: stimulant; spice and aromatic crops; forage products; plants and parts of plants used primarily in perfumery, pharmacy, or for insecticidal, fungicidal or similar purposes; beet seeds (excluding sugar beet seeds) and seeds of forage plants; natural rubber in primary forms or in plates, sheets or strip, living plants; cut flowers and flower buds; flower seeds, unmanufactured tobacco; other raw vegetable materials nec	465.33	1832.99	-0.39	543.3	433.63	1.8
Cattle: bovine animals, live, other ruminants, horses and other equines, bovine semen	185.31	-0.29	-0.64	0.44	-0.88	0.34
Other Animal Products: swine; poultry; other live animals; eggs of hens or other birds in shell, fresh; reproductive materials of animals; natural honey; snails, fresh, chilled, frozen, dried, salted or in brine, except sea snails; edible products of animal origin n.e.c.; hides, skins and furskins, raw; insect waxes and spermaceti, whether or not refined or coloured	3.18	0.56	-0.1	0.3	-0.57	0.34
Raw milk	-2.75	-0.47	-1.12	1.56	-1.73	0.63
Wool: wool, silk, and other raw animal materials used in textile	114.18	94.39	4.36	103.62	0.98	6.56
Forestry: forestry, logging and related service activities	92.91	2.18	3.46	2.99	0.06	3.14
Fishing: hunting, trapping and game propagation including related service activities, fishing, fish farms; service activities incidental to fishing	4.48	-4.87	-5.41	-5.49	78.83	-5.84
Coal: mining and agglomeration of hard coal, lignite and peat	1.64	1.53	1.8	18.08	2.12	1.79
Oil: extraction of crude petroleum, service activities incidental to oil and gas extraction excluding surveying (part)	-0.49	0.07	-0.04	0.07	-0.05	1.22
Gas: extraction of natural gas, service activities incidental to oil and gas extraction excluding surveying (part)	22.46	-59.9	16.51	-52.14	-50.78	-57.71
Other Mining Extraction (formerly omn): mining of metal ores; other mining and quarrying	36.32	55.31	55.35	55.9	55.27	54.17

Cattle Meat: fresh or chilled; meat of buffalo, fresh or chilled; meat of sheep, fresh or chilled; meat of goat, fresh or chilled; meat of camels and camelids, fresh or chilled; meat of horses and other equines, fresh or chilled; other meat of mammals, fresh or chilled; meat of mammals, frozen; edible offal of mammals, fresh, chilled or frozen	-5.76	0.01	0.23	1.08	1.46	1.42
Other Meat: meat of pigs, fresh or chilled; meat of rabbits and hares, fresh or chilled; meat of poultry, fresh or chilled; meat of poultry, frozen; edible offal of poultry, fresh, chilled or frozen; other meat and edible offal, fresh, chilled or frozen; preserves and preparations of meat, meat offal or blood; flours, meals and pellets of meat or meat offal, inedible; greaves	864.8	-2.64	-2.12	-0.09	-4.81	-1.5
Vegetable Oils: margarine and similar preparations; cotton linters; oil-cake and other residues resulting from the extraction of vegetable fats or oils; flours and meals of oil seeds or oleaginous fruits, except those of mustard; vegetable waxes, except triglycerides; degreas; residues resulting from the treatment of fatty substances or animal or vegetable waxes; animal fats	130.56	112.77	-2.29	0	428.88	-1.97
Milk: dairy products	530.33	1882.87	-9.35	-8.54	-10.28	-9.21
Processed Rice: semi- or wholly milled, or husked	10.68	2.25	1.81	4.74	3.55	1.96
Sugar and molasses	1112.53	-3.58	-2.26	-1.11	-5.46	-1.8
Other Food: prepared and preserved fish, crustaceans, molluscs and other aquatic invertebrates; prepared and preserved vegetables, pulses and potatoes; prepared and preserved fruits and nuts; wheat and meslin flour; other cereal flours; groats, meal and pellets of wheat and other cereals; other cereal grain products (including corn flakes); other vegetable flours and meals; mixes and doughs for the preparation of bakers' wares; starches and starch products; sugars and sugar syrups n.e.c.; preparations used in animal feeding; lucerne (alfalfa) meal and pellets; bakery products; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products; food products n.e.c.	166.58	751.86	-3.78	179.22	139.68	2838.15
Beverages and Tobacco products	432.97	81.94	8.25	7.86	3.54	10.99
Manufacture of textiles	103.27	105.92	111.7	294.16	95.88	173.5
Manufacture of wearing apparel	131.29	-1.33	144.83	761.1	142.34	111.08
Manufacture of leather and related products	81.67	110.67	109.24	107.59	101.54	109.69
Lumber: manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	71.51	91.6	-0.32	91.96	87.78	91.35
Paper & Paper Products: includes printing and reproduction of recorded media	19.42	14.16	1.68	1.12	53.93	0
Petroleum & Coke: manufacture of coke and refined petroleum products	19.09	11.41	10.63	11.55	27.04	19.2
Manufacture of chemicals and chemical products	46.68	37.11	42.87	28.36	26.82	37.93
Manufacture of pharmaceuticals, medicinal chemical and botanical products	44.87	-2.13	-2.24	-2.12	62.1	-2.41
Manufacture of rubber and plastics products	64.39	84.01	79.58	79.52	84.04	84.61
Manufacture of other non-metallic mineral products	28.53	67.38	-3.71	66.06	44.42	67.19
Iron & Steel: basic production and casting	33.61	43.11	38.65	35.82	39.96	51.1
Non-Ferrous Metals: production and casting of copper, aluminium, zinc, lead, gold, and silver	69.63	29.62	53.29	28.56	58.35	56.33

Manufacture of fabricated metal products, except machinery and equipment	87.31	100.43	99.64	101.56	98.32	100.46
Manufacture of computer, electronic and optical products	56.48	81.6	54.11	46.59	78.1	14.59
Manufacture of electrical equipment	85.67	100.37	91.4	77.86	71.69	78.41
Manufacture of machinery and equipment n.e.c.	60.37	88.62	76.81	81.21	77.1	77.77
Manufacture of motor vehicles, trailers and semi-trailers	564.6	-0.74	422.85	49.89	81.49	50.03
Manufacture of other transport equipment	94.78	95.28	45.59	32.02	41.77	21.47
Other Manufacturing: includes furniture	79.77	78.69	123.75	142	83.61	111.41
Electricity; steam and air conditioning supply	-1.4	1.02	0.15	0.11	0.35	-1.76
Gas manufacture, distribution	-8.5	-0.78	0.07	0.64	-0.52	-0.1

Employment and Wages

With respect to employment (table 9), it is seen that, with respect to India, a potential FTA with GCC may have a possible positive impact on employment generation as for the most part, there may be an increase in employment for the most part, with respect to India. Some of the largest potential gains in employment may be for high skilled workers (Officers/managerial professions) and low skilled workers. In fact, it may be seen that the benefits for clerks and factors workers may also be good. But, with respect to GCC, it is seen that, there may not be much change in employment. One reason for the same maybe that, vis-à-vis India there labour force may not be large or the labour surplus may also not be large. Turning to wages (table 10), it is seen that,

as with employment, there may also be potential positive impact on wages, with respect to India and also with respect to the GCC countries. It may be possible that the combined effects of a decrease in tariffs, increase in production, increase in employment, increase in exports may be simulating the demand for labour, leading to higher wages. These possible mutually reinforcing forces may lead to higher wages across the board for all labour categories both in India and in GCC countries. While, it may be possible that a complete reduction in tariffs across the board between India and GCC countries may not be possible, a reasonably large reduction in tariffs, may possibly have a positive impact on employment and wages, maybe through the channels of higher production, higher exports and higher demand for labour.

Table 9: Change in Employment (Agriculture and Manufacturing), India and GCC Countries (% change)

Country	Clerks	Service Shop/ Factory Workers	Technical/ Professional workers	Officers / Managerial Professionals	Agricultural and Other Low Skilled Workers
India	0.34	0.31	-0.09	0.36	0.83
UAE	0	0	0	0	0
Saudi Arabia	0	0	0	0	0
Qatar	0	0	0	0	0
Kuwait	0	0	0	0	0
Oman	0	0	0	0	0
Bharani	0	0	0	0	0

Table 10: Change in Wages (Agriculture and Manufacturing), India and GCC Countries (% change)

Country	Clerks	Service Shop/ Factory Workers	Technical/ Professional workers	Officers/Managerial Professionals	Agricultural and Other Low Skilled Workers
India	0.34	0.34	0.34	0.34	0.34
UAE	2.36	2.31	2.33	2.79	2.72
Saudi Arabia	0.28	0.25	0.26	0.28	0.4
Qatar	0.36	0.34	0.33	0.39	0.48
Kuwait	0.6	0.48	0.54	0.56	0.98
Oman	0.79	0.42	0.46	0.72	1.53
Bharani	0.31	0.25	0.32	0.42	0.43

GDP, Investment and Aggregate Exports and Imports

The scenario that is envisaged here involves a reduction in tariffs is modelled on the India UAE trade agreements. Given that the recent FTA with UAE is one of the deepest India has signed, it is seen that a reduction in tariffs may have a positive impact on total investment and trade for India and the GCC countries (table 11).

The reduction in tariffs and lower prices, may be stimulating production and exports, possibly leading to higher demand for investment. This may be driving the positive change in total investment across all the countries.

The mechanisms that may be at play with respect to exports and imports of the various industries for all the countries is also being reflected with respect to aggregate exports and aggregate imports.

With respect to GDP, it may be seen that, India may possibly have the largest gain in growth of GDP, vis-à-vis the other FTA partners. A general overall reduction in tariffs between the FTA partners may perhaps increase the demand for Indian exports and may also help Indian manufacturing access cheaper imports. The possibly general simulation that may be felt in production, prices, demand, consumption, investment and trade may possibly drive the positive net change in India's GDP.

For the GCC countries, it may be seen that there may not much net gain or in some cases, there may be a possible net loss, albeit very small. A possible reason for this may be the opening up of possibly sensitive industries, which may be avoided in the actual negotiations. Further, given that the tariffs are already low in these countries vis-à-vis India, the actual impact of a reduction in tariffs may not be that large.

Table 11: Change in GDP (real), Total Investment, Total Exports and Imports, India and GCC Countries (% change)

	GDP	Total Investment	Total Exports	Total Imports
India	0.26	1.67	2.09	1.81
UAE	-0.02	2.49	0.55	2.57
Saudi Arabia	0	0.53	0.12	0.78

Qatar	0.01	0.74	0.03	0.91
Kuwait	-0.01	1.35	0.03	0.77
Oman	0.03	0.78	0.25	0.57
Bharani	-0.01	0.45	0.03	0.47

IV. Conclusion

This paper attempted to understand what maybe the possible impact of an FTA between India and GCC countries. The paper has solely restricted itself to trade in goods. A simulation was conducted, assuming reduction of tariffs between India and GCC countries. The results of this were studied on production, prices, exports, imports, employment, wages, investment and GDP.

Overall, it may be seen that a potential FTA between India and GCC countries may bring positive gains in production, prices, exports, imports, employment, wages, investment and GDP.

With respect to India, its manufacturing exports, across products, may increase. This increase in exports may be driven by an increase in production, which may also have positive spill overs in terms of employment and wages.

The possible potential gain in GDP in India

may be much more vis-à-vis the GCC countries. A caveat may be mentioned here. It was observed that in some cases, there may be a drop in agriculture output. It may be mentioned here that, this is a simulation exercise, and it did not take into account the strict ROO needed for preferential trade in agriculture. But, as is known, agriculture is a sensitive area for India in trade negotiations.

In this regard, the possible impact on agriculture may be lower and if India may get favourable terms with respect to agriculture market access in GCC countries, may possibly lead to an increase in agriculture/food product exports to those countries.

Going forward, the potential impact of an FTA between India and the GCC countries, at least in terms of goods trade, may be contingent on the level of market access, the phasing out period of tariffs, list of excluded/defensive lines, rules of origins and product standards.

BIBLIOGRAPHY

(Views of the authors are personal)

Data extracted from World Trade Organization as on 8 July 2023

https://www.wto.org/english/docs_e/legal_e/26-gats_01_e.htm#articleV

https://www.wto.org/english/docs_e/legal_e/enabling1979_e.htm

Baier, SL, Bergstrand, JH (2007). Do free trade agreements actually increase members' international trade? Journal of International Economics 71, 72-95.

Mulabdic, A, Osnago, A, Ruta, M (2017). Deep integration and UK-EU trade relations. World Bank

Laget, E, Osnago, A, Rocha, N, Ruta, M (2018). Deep trade agreements and global value chains.

Espitia, A, Mattoo, A, Mimouni, M, Pichot, X, Rocha, N (2020a). Preferential tariffs. Chapter 1 in the World Bank report "Handbook of Deep Trade Agreements".

Anderson, JE, Yotov, YV (2016). Terms of trade and global efficiency effects of free trade agreements, 1990–2002. Journal of International Economics 99, 279-298

Sikdar and Nag (2011), Impact of India-ASEAN Free Trade Agreement: A cross-country analysis using applied general equilibrium modelling. UNESCAP

Seshadri (2015), India-Korea CEPA-An Appraisal of Progress, Research and Information System of Developing Countries (RIS)

Mukherji, I. N., Jayawardhana, T., Kelegama, S., (2002), 'Indo-Sri Lanka Free Trade Agreement: An Assessment of Potential and Impact'

Weerakoon, D. and Thennakoon, J. (2006). 'India -Sri Lanka FTA'. CUTS International Lessons for SAFTA

Joshi (2012), Econometric Analysis of the India-Sri Lanka Free Trade Agreement, Asian Economic Journal, 26(2). 159-180.

https://m.rbi.org.in//scripts/BS_ViewBulletin.aspx?Id=18468

ibid

United Arab Emirates, Kingdom of Bahrain, Kingdom of Saudi Arabia, Sultanate of Oman, State of Qatar and State of Kuwait

<https://pib.gov.in/PressReleasePage.aspx?PRID=1878714>

THE FUTURE IS BLUE- HARNESSING THE POWER OF BLUE ECONOMY IN INDIA

Aakriti Vinayak

Assistant Director, Multilateral Engagements, FICCI



“To me the blue chakra or wheel in India’s national flag represents the potential of Blue Revolution or the Ocean Economy. That is how central the ocean economy is to us.” - PM Narendra Modi

Our blue planet's oceans account for 72% of its surface and support a sizeable amount of the world's inhabitants through food and livelihood. Marine and coastal habitats are a crucial resource for economic development, contributing to more than 80% of world trade.

In this context, Blue Economy (BE) is a new paradigm in the development discourse which gives equal weightage to economic growth and environmental sustainability. Blue Economy encompasses a wide range of economic activities pertaining to sustainable development of resources and assets in the oceans, related rivers, water bodies and coastal regions – in a manner that ensures equity, inclusion, innovation, and modern technology. Blue Economy has

become the important paradigm of economic growth in the present times, vis-à-vis the growing concern over sustainably harnessing the ocean and water bodies.

It was with the publication of Gunter Pauli’s book in 2010, which was essentially his report to the Club of Rome, that blue economy as a concept gained prominence. But the meaning of this concept has evolved considerably in the current decade. It is important to note that till now, there is hardly any universally accepted definition of the BE. There is a generic definition from the European Commission which related BE to all the economic activities pertaining to the marine and the coastal ecosystem, however sustainability dimension of BE is covered

by the definitions from World Bank And UN. Be that as it may, the global importance of the BE can be gauged from the fact that 80 per cent of world trade happens using the seas, 40 per cent of the world's population live near coastal areas, and more than 3 billion people access the oceans for their livelihood. The estimated value of the BE's "natural capital" is roughly USD 25 trillion, and the estimated annual value of its produced goods and services is USD \$2.5 trillion, which equates to the GDP of the world's seventh-largest country.

India has a long coastline of 7,500 km (including island territories) which provides immense opportunities for Blue Economy. India's engagement with the Blue Economy has been a foremost policy priority. India endorses the growth of the Blue Economy in a sustainable, inclusive and people centered manner. The growing importance accorded to the Blue Economy was clear when the Indian government's vision was articulated during Prime Minister Narendra Modi's visit to Mauritius and Seychelles in March 2015. PM Modi's vision for the seas through "Security and Growth for All in the Region" (SAGAR) endorsed Blue Economy as a new pillar of economic activity in the coastal areas and linked hinterlands through sustainable tapping of oceanic resources.

Another relevant initiative, in this context, is the 'Sagarmala' project, spearheaded by the Ministry of Ports, Shipping, and Waterways. Since its inception in March 2015, over 500 ports and port-related projects have been undertaken for modernization and improvements in connectivity. 'Sagarmala' envisions port-led growth along India's coasts and includes various infrastructure and skill development projects. As of 2021, 802 projects, valued at Rs 5.5 lakh crores (USD 66.4 billion), have been identified for implementation by 2035, with over half of them under various stages of completion.

The blue economy plays an important role in India's economic growth. Blue Economy witnessed robust growth than overall economy during 2011-12 to 2016-17, more specifically during 2015-17. In current prices, blue economy GDP experienced double-digit growth (in gross value added) in several sectors during 2011-12 to 2016-17. A major milestone in India's BE trajectory is the draft policy on Blue Economy, released by the Economic Advisory Council to the Prime Minister in September 2020.

India being at the strategic location in the Indian ocean can harness the potential of the blue economy. However, to realise the potential of the oceans in a sustainable way, technology is to be used effectively. Another challenge in the blue economy paradigm is financing the sector. It is important to note that prior to the COVID-19 pandemic, the blue economy was expected to double from 2010 to 2030 to reach \$3 trillion and employ 40 million people. Despite this size current investment falls far below what is needed to transition this to a sustainable blue economy.

India leading the current G20 presidency should put forward blue economy as one of the important areas for economic cooperation. As G20 nations which make up 45% of the world's coastline and 21% of its exclusive economic zones are well placed to foster blue development and lead the blue economic discourse in the right direction.



BIBLIOGRAPHY

<https://pib.gov.in/newsite/printrelease.aspx?relid=116881>

<https://www.iora.int/en/priorities-focus-areas/blue-economy>

<https://www.indiatoday.in/news-analysis/story/blue-economy-under-india-g20-presidency-not-altruistic-intent-development-imperative-2318516-2023-01-07>

<https://theguardian.com/blue-economy-navigating-indias-indian-ocean-vision/>

<https://blogs.worldbank.org/climatechange/blue-finance-how-can-innovative-wave-finance-blue-economy>

ESG AND IMPACT OF COVID-19

Testing the institutional difference hypothesis: A study about environmental, social, governance, and financial performance

Aditi Pathak, Poorvi Gupta, Suhani Bansal

Gargi College, University of Delhi



Abstract

This study examines how changes in the S&P BSE SENSEX and NIFTY 50 indexes impact the S&P 500 ESG Index, which examines the relationship between environmental, social, and political dimensions of governance (ESG) within a corporation. To evaluate the rise in ESG index contributed by other Indian Stock Market Indexes, the study employed a log-log regression model. Secondary sources were used to compile monthly data from 2012 to 2022 in order to draw conclusions about the cause-and-effect relationship between aforementioned independent and dependent variables. This study examines index growth rates both before and after the Covid-19 pandemic. Despite greater risks, the ESG Index significantly increased in response to the favourable developments

in the S&P BSE, SENSEX AND NIFTY 50 Index.

Introduction

ESG is a set of standards used to evaluate a company's governance, social responsibility, and environmental effect. Environmental factors include a company's carbon footprint, waste management, and resource usage. Social factors encompass employee welfare, diversity, human rights, and community engagement. Governance factors involve board composition, executive compensation, transparency, and anti-corruption measures. The concept of ESG (Environmental, social and governance) has its roots in corporate social responsibility (CSR) movements that emerged in the 1960s and 1970s. In the 1990s, ESG evolved as a framework that-

integrated financial analysis with environmental, social, and governance considerations.

In recent years, ESG has gained considerable momentum globally. The growth of sustainable investing, shareholder activism, and the rise of ESG rating agencies have further propelled the ESG agenda. Companies are now expected to disclose ESG information transparently and improve their sustainability efforts.

The S&P 500 ESG Index is a broad-based, market-cap-weighted index that is designed to measure the performance of securities meeting sustainability criteria, while maintaining similar overall industry group weights as the S&P 500. Being listed from the past 20 years, the S&P ESG Index enables investors with significant exposure to firms in the context of national and regional indexes, all based on their ESG profile. The NIFTY 50 is a benchmark Indian stock market index that represents the weighted average of 50 of the largest Indian companies listed on the National Stock Exchange.

The S&P BSE SENSEX is a free-float market-weighted stock market index of 30 well-established and financially sound companies listed on the Bombay Stock Exchange.

This paper aims to examine the impact of Indian Stock Market Indexes on ESG Index. By analysing empirical research and case studies, the report seeks to determine whether there is a correlation between ESG Index and other Stock market Indexes.

It aims to provide insights into how ESG Index gets affected by growth of other indexes. The paper's trajectory is as follows: the first section explains the overview of the study and describes the objective of

conducting this study, it is followed by the second section that explains the theoretical concepts related to this paper. The third section contains a review of the literature. Further, the paper includes the questions and hypothesis that the paper addresses. Next section outlines the methodology used for the study. The final two sections contain results obtained through analysis of data, and the conclusion is drawn.

Overview

The purpose of this study is to explain how particular factors impact corporations' Environmental, Social and Governance (ESG) Index and to provide some empirical evidence demonstrating the significance of these features having a cause-and-effect relationship. Empirical results demonstrate a significant association between studied independent variables and the dependent variable.

Additionally, this paper is structured around the idea that factors such as NIFTY50 Index and BSE SENSEX Index, all affect how much ESG Index grows. To examine the strength of their relationship and respond to the stated issues, this study is undertaken by gathering secondary data of the two independent and one dependent variables. The techniques employed for the statistical analysis of the data are multiple linear regression models, created with the use of SPSS software. Accordingly, in this study, we examined the growth spill overs between ESG global indices and the developed and emerging stock markets owing to various factors, including the growing importance of ESG in recent years, the positive performance of the ESG indices during COVID-19, and its evidence of being a haven in times of crisis.

Theoretical Concept

Effect of SENSEX over ESG:

The Sensex index, a leading indicator of

the Indian stock market, can influence ESG (environmental, social, and governance) investing in a number of ways:

1. **Environmental Impact:** The companies that make up the Sensex index may have an effect on the environment. ESG investors may decide not to invest in the index if the companies in it are significant polluters or have a detrimental impact on the environment.

2. **Social Impact:** The companies that make up the Sensex index may also have a social impact. ESG investors may decide not to invest in the index if the companies included in it exhibit subpar labour standards or violate human rights.

3. **Impact on Governance:** The companies that make up the Sensex index may have an impact on governance. ESG investors may decide to stay away from the index if the companies included have bad governance practices, such as a lack of transparency or a history of corruption.

4. **Investment Opportunities:** On the other side, the Sensex index might give ESG investors with investment opportunities. If the index includes companies that are ESG leaders, such as renewable energy or socially responsible investment, ESG investors may opt to invest in the index to support these companies and promote sustainable practices.

Overall, the impact of the Sensex index on ESG investing depends on the companies included in the index and their environmental, social, and governance practices. ESG investors may choose to avoid or invest in the index based on these factors.

Effect of NIFTY 50 over ESG:

The Nifty 50 index, India's main stock mar-

ket index, has various implications for ESG (environmental, social, and governance) investing:

1. **Environmental Impact:** The companies in the Nifty 50 index might have an impact on the environment. ESG investors may choose to avoid investing in the index if the companies in it are large polluters or have a detrimental impact on the environment.

2. **Social influence:** The companies included in the Nifty 50 index can have a social influence. If the index's companies have terrible labour practises or violate human rights, ESG investors may choose not to invest in the index.

3. **Governance Impact:** The companies in the Nifty 50 index might have an impact on governance. ESG investors may choose to avoid investing in the index if the companies in the index have poor governance practices, such as a lack of transparency or a history of corruption.

4. **Investment Opportunities:** On the other side, the Nifty 50 index might give ESG investors with investment opportunities. If the index includes companies that are ESG leaders, such as renewable energy or socially responsible investment, ESG investors may opt to invest in the index to support these companies and promote sustainable practices.

Overall, the Nifty 50 impact on ESG investment is determined by the companies included in the index. Based on these considerations, ESG investors may opt to avoid or invest in the index.

Literature Review

The relationship between S&P BSE SENSEX and NIFTY50 indices with ESG scores has been extensively researched.

As the chairman of UNEP FI, Clements-Hunt and his colleagues set an ambitious goal: to mobilize the world's top investors to act on important global challenges. The concept was that the goals of the United Nations were truly linked with the needs of long-term investors — insofar as a stable environment and world in general contribute to a more prosperous economy. This all led to the discovery of ESG investment. Companies' strategies are increasingly incorporating environmental sustainability and social correctness (Hart, 2007; Prahalad, 2005; Sachs, 2008). Within the management literature, such movement was triggered by the argument of Porter and Van Der Linde (1995), who stated that adequate environmental standards and regulations may encourage firms to innovate, increase the productivity of their resources and consequently, improve its competitiveness. The present study is necessitated to find the relationship between S&P100ESG index and fellow Indian Stock Market indices, namely BSE SENSEX and S&P NIFTY 50. Empirical results of the study depicted that there is a relationship between financial performance and ESG scores.

“Risk-return and Volatility analysis of Sustainability Index in India” (Sudha Srinivasan): The study has compared the returns of the same with two broad market proxies i.e., Nifty index and the CNX 500 index—and also attempted to model the conditional volatility of these indices. The paper also talks about how ESG indices, while having similar impact, are comparatively more stable and less volatile than fellow indices. These results indicate that socially responsible investing is providing reasonable returns for investors in the Indian context.

“Impact of ESG Ratings on the Performance of the Nifty 50 Companies”(Sahoo, P., & D-

ey, A., 2021). They examined and found that the findings revealed that organizations with higher ESG ratings outperformed their competitors in terms of financial performance. It emphasizes the significance of ESG ratings as a useful tool for measuring a company's sustainability and long-term performance. This paper examines the impact of important financial indicators on the ESG scores.

An Empirical Study of the Relationship Between ESG Scores and Stock Returns: Evidence from the Sensex Index" (J. Srinivasan and S. Swaminathan's, 2021): The writers examine the companies' ESG performance using data from a reputable ESG research company. They discover that companies with higher ESG scores have greater returns, but the association is not significant when other factors such as market risk and size are taken into account. Overall, the literature suggests that there is a positive relationship between ESG performance and financial performance/stock prices of companies in both the Sensex and Nifty50 indices.

Overall, the Nifty 50 impact on ESG investment is determined by the companies included in the index. Based on these considerations, ESG investors may opt to avoid or invest in the index.

Hypothesis Testing

For achieving the purpose of our research, the following hypothesis have been developed:

Null hypothesis (Ho): There is no impact of SENSEX index and NIFTY50 index over ESG index.

Alternative Hypothesis (H1): There is a significant impact of SENSEX index and

NIFTY50 index over ESG index.

If the null hypothesis is substantiated, it would suggest that the regression coefficients for selected independent variables, i.e.- SENSEX index and NIFTY50 index are zero and that there is no relation between dependent variables, i.e.- ESG index and chosen independent variables. However, in case the null hypothesis is rejected, and the alternative hypothesis is sustained, it would suggest that the coefficients are non-zero and chosen independent variables are therefore useful in explaining the dependent variable ESG index.

Null hypothesis (H01): Equals zero i.e.- The coefficient of SENSEX index is not significant.

Alternative Hypothesis (H11): Is not equal to zero i.e., coefficient of SENSEX index is significant.

If the null hypothesis is substantiated, it would suggest that the regression coefficient for SENSEX index is zero and that there is no relation between ESG index and SENSEX index. However, in case the null hypothesis is rejected, and the alternative hypothesis is sustained, it would suggest that the coefficient is non-zero and the SENSEX index is therefore useful in explaining the ESG index.

Null hypothesis (H02): Equals zero i.e., coefficient of NIFTY50 Index is not significant.

Alternative Hypothesis (H12): Is not equal to zero i.e., coefficient of NIFTY50 Index Is significant.

If the null hypothesis is substantiated, it would suggest that the regression coefficient for NIFTY50 index is zero and that there is no relation between ESG index and NIFTY50 Index. However, in case the null hypothesis is rejected, and the alternat-

ive hypothesis is sustained, it would suggest the coefficient is non-zero and NIFTY50 Index is therefore useful in explaining the variable ESG Index.

Data Methodology

The complete study has been based on the secondary data extracted from the NSE website. The data which was collected from the above resources was tabulated and put to statistical test. We have taken S&P BSE SENSEX and NIFTY 50 indices as the independent variables in the model, whereas the S&P 500 ESG Index is a dependent variable. The variables taken are monthly in nature collected over the course of 10 years, i.e., from 2012-2022. They are mentioned as follows:

- S&P 500 ESG Index

S&P 500 ESG Index is a broad-based, market-cap-weighted index that is designed to measure the performance of securities meeting sustainability criteria for 10 years observed monthly.

- The NIFTY 50

The NIFTY 50, a benchmark Indian stock market index that represents the weighted average of 50 of the largest Indian companies listed on the National Stock Exchange was observed monthly over the course of 10 years.

- The S&P BSE SENSEX

The monthly data of S&P BSE Sensex data, a free-float market-weighted stock market index of 30 well-established and financially sound companies is taken from 2012 to 2022.

The analysis technique used in this study is multiple linear regression that is used to d-

etermine the direction of the influence of S&P BSE SENSEX and NIFTY 50 indices on growth of ESG Index This analysis is processed using the IBM SPSS Statistics.

Ahead of multiple linear regression, assumptions of Normal distribution of data, no multicollinearity, homoscedasticity of data and absence of autocorrelation are also tested.

Result Analysis

1. PREREQUISITES TO THE REGRESSION ANALYSIS: The Regression analysis has the following key assumptions which must be met for the model to be a good fit:

1.1 Normality Test: One of the many key assumptions of Regression analysis is Normality of the data. This assumption must not be violated to ensure that the model studied is a good fit.

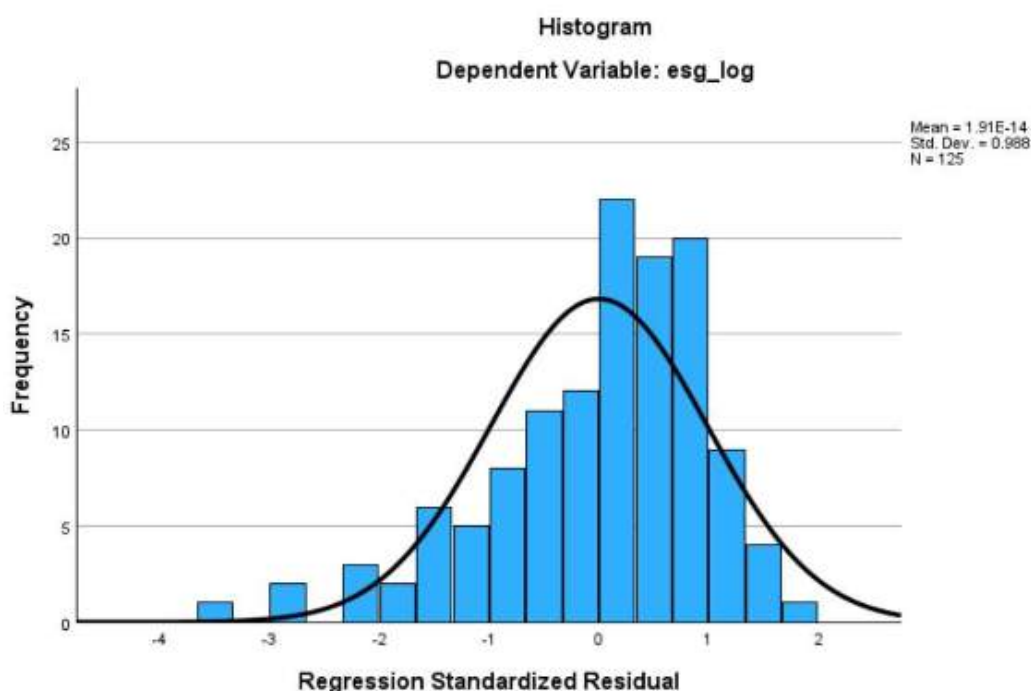
A. Graphical Test: One of the several tools to study the normality of the data is Histogram and Normal Curve Outlay Data Analysis tool, conforming to which the closer the normal curve to the histogram, the more likely is the data to be normally distributed.

The histogram of the sample data does not produce a perfectly smooth normal curve i.e., the sample data is not a perfectly bell-shaped curve. However, it can be noted that the data is approximately normal with the peak in the middle and with the counts dying out in the tails. Thus, the assumption of normality has been fairly met for the sample data.

B. Statistical Test: In statistics, skewness is a measure of the asymmetry of the probability distribution of a random variable about its mean. In other words, skewness tells you the amount and direction of skew (departure from horizontal symmetry). The skewness value can be positive or negative, or even undefined. If skewness is 0, the data are perfectly symmetrical, although it is quite unlikely for real-world data. As a general rule of thumb:

- If skewness is less than -1 or greater than 1, the distribution is highly skewed.
- If skewness is between -1 and 1, the distribution is moderately skewed, i.e.-relatively normal.

From Table 1, since skewness lies between -1 and 1 for all variables, we conclude that



Descriptives



Descriptive Statistics

	N Statistic	Minimum Statistic	Maximum Statistic	Mean Statistic	Std. Deviation Statistic	Skewness		Kurtosis	
						Statistic	Std. Error	Statistic	Std. Error
esg_log	125	4.72	6.03	5.3699	.33559	.252	.217	-.864	.430
sensex_log	125	9.69	11.05	10.3937	.34643	.150	.217	-.758	.430
nifty_log	125	8.50	9.84	9.1931	.34153	.107	.217	-.719	.430
D1	125	.00	1.00	.2720	.44678	1.037	.217	-.939	.430
Valid N (listwise)	125								

our data is relatively normal.

Hence, the normality assumption has been fairly met.

Multicollinearity

Another important assumption of regression analysis is that there must not be any exact linear relationship among the independent variables. This assumption is based on the primary concern that the coefficient estimates tend to become unstable, and the standard error of coefficients can be widely inflated if high collinearity exists between the independent variables.

To test for multicollinearity, one of the many methods is testing through VIF and Tolerance VIF (Variance Inflation Factor) measures the severity of multicollinearity in regression analysis. It is calculated as follows:

Generally, a VIF above 4 or tolerance below 0.25 indicates that multicollinearity might exist. However, it's only when VIF is higher than 10, there is significant multicollinearity that needs to be corrected.

The table 2 above shows that for the independent variable

- NIFTY 50(LOG VALUE); the VIF=627.517 (i.e., > 4) and tolerance = 0.002(i.e., < 0.25) indicating that multicollinearity exists, however, the multicollinearity is problematic as the VIF is above 10.
- SENSEX (LOG VALUE); the VIF=656.717 (i.e., > 4) and tolerance = 0.002(i.e., < 0.25) indicating that multicollinearity exists; however, the multicollinearity is problematic as the VIF is above 10.

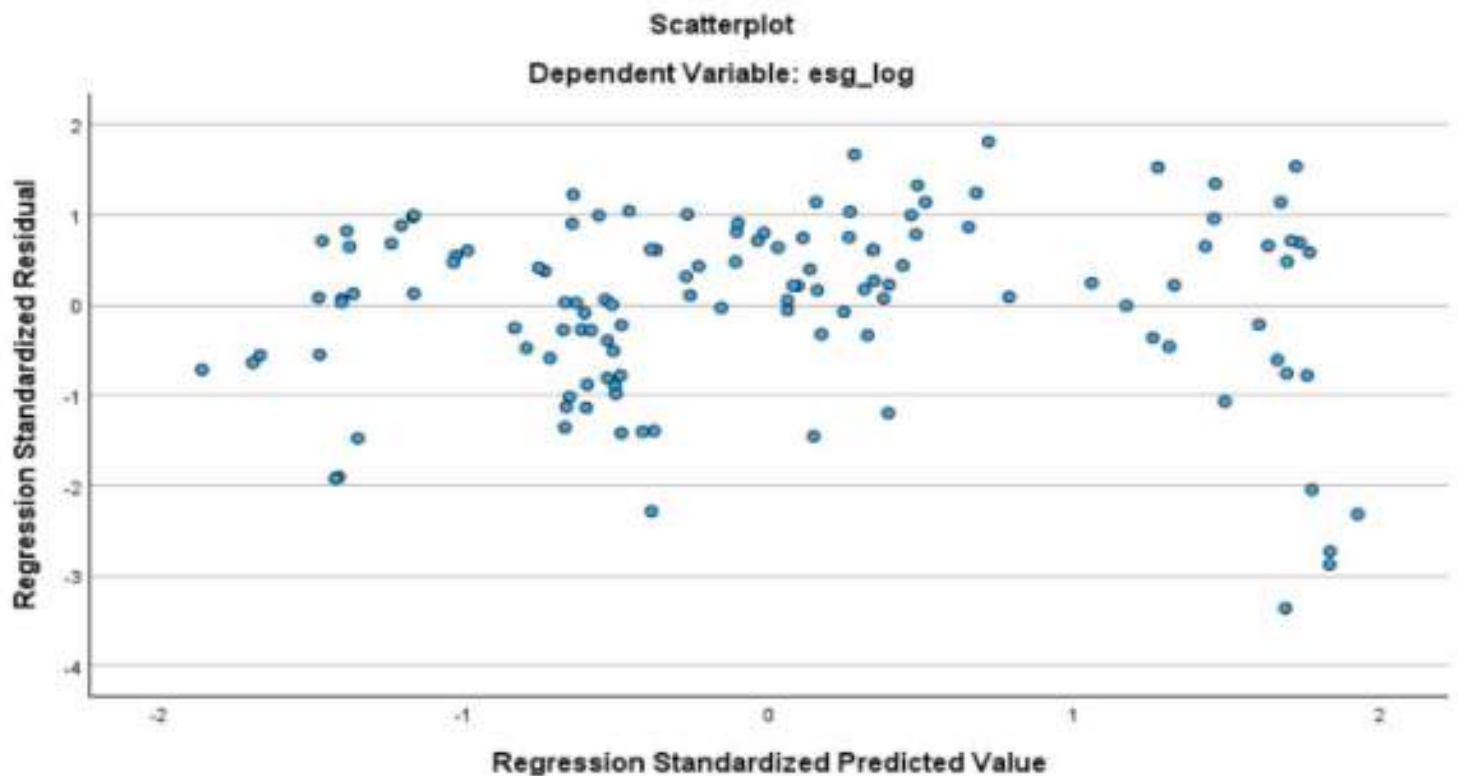
Thus, the assumption of no multicollinearity cannot stand.

TABLE 2:

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Tolerance	VIF
1	(Constant)	-3.842	.517		-7.434	<.001	-4.865	-2.819		
	nifty_log	-.509	.370	-.518	-1.377	.171	-1.241	.223	.002	627.517
	sensex_log	1.333	.373	1.376	3.577	<.001	.595	2.071	.002	656.717
	D1	.122	.019	.163	6.526	<.001	.085	.159	.363	2.758

a. Dependent Variable: esg_log



Heteroscedasticity

Heteroscedasticity refers to the problem of unequal variance of error terms. The variances of the error terms should be constant or homoscedastic. Graphical method (scatter diagram) is used to detect the problem of heteroscedasticity. If the data points exhibit any particular pattern, it shows that the problem of heteroscedasticity exists. If the data points do not exhibit any pattern and are random, it means that the problem of heteroscedasticity does not exist.

To test for heteroscedasticity, the above graph is obtained for the sample data

Since the data points are random and do not portray any pattern, we conclude that variances of the error terms are constant or homoscedastic. Hence the assumption of no (or little) heteroscedasticity has been met.

Autocorrelation

Autocorrelation occurs when the error term observations in a regression are correlated. The theoretical error term e is a random variable that is part of the regression model, even before it is estimated. However, the error term e can never be seen. Therefore, the error term observations or residuals (\hat{e}) are used to check for autocorrelation. If they follow a pattern, this pattern is evidence of autocorrelation.

One of the many ways to test autocorrelation is the Durbin Watson Test which measures the autocorrelation in residuals from regression analysis. The value of Durbin Watson test statistic helps determine autocorrelation as shown below:

- 2 is no autocorrelation.
- 0 to <2 is positive autocorrelation (common in time series data)
- >2 to 4 is negative autocorrelation (less common in time series data)

We see that Durbin Watson Test Statistics

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.986 ^a	.973	.972	.05611	.432
a. Predictors: (Constant), D1, nifty_log, sensex_log					
b. Dependent Variable: esg_log					

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.584	3	4.528	1438.353	<.001 ^b
	Residual	.381	121	.003		
	Total	13.965	124			

a. Dependent Variable: esg_log

b. Predictors: (Constant), D1, nifty_log, sensex_log

=0.432. This implies that the sample data reflects a high positive Autocorrelation. Thus, the assumption of no Autocorrelation cannot stand.

Enter Selection Approach

We use the enter selection approach to create a multiple linear regression model with optimum set of explanatory variables for the given sample data with ESG Index as the response variable and SENSEX index and NIFTY50 index as the explanatory variable. Following results are generated on running enter selection on the sample data

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	D1, nifty_log, sensex_log ^b		Enter
a. Dependent Variable: esg_log			
b. All requested variables entered.			

Using SPSS we get the value of adjusted R-square as 0.972 and R-square as 0.973 which is statistically a very good value and shows that the regression model, we have run is nearly an accurate one and the regression line fits our data.

Multiple Linear Regression

The model summary table helps interpret information about the regression line's ability to explain for the total variation in the dependent variable. R (square root of R-square) provides information about the correlation between the observed and predicted values of the dependent variable. While R-square is the proportion of total variance in the dependent variable accounted by the independent variables. The other terms in the table summary include Adjusted R-square which yields a more honest value to the estimate of R-square by taking into account the number of predictors and number of data points, and Standard error of Estimate which refers to the standard error of the error term.

On running regression for the sample data, following results were obtained:

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	D1, nifty_log, sensex_log ^b		Enter
a. Dependent Variable: esg_log			
b. All requested variables entered.			

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.986 ^a	.973	.972	.05611	.432
a. Predictors: (Constant), D1, nifty_log, sensex_log					
b. Dependent Variable: esg_log					

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.584	3	4.528	1438.353	<.001 ^b
	Residual	.381	121	.003		
	Total	13.965	124			
a. Dependent Variable: esg_log						
b. Predictors: (Constant), D1, nifty_log, sensex_log						

Anova

The model summary table (table 7) above reveals that the R value is 0.986, which indicates a high degree of correlation. The R-square value reveals that 97.3% of the total variance in the ESG Index is explained by the independent variables stated in the table 1 above, which is fairly good. The adjusted R-square value of 97.2% is also fairly high indicating the model to be a good fit. Further, the standard error of the estimate based on the regression line is relatively small signifying the accuracy in the estimated figures and goodness in the fit of the model.

The Anova table provides an assessment of a statistical difference in more than two independent means. The table breaks down the components of variation in the sample data into variation between treatments (Regression) and error (Residual) variation. The on-F test is used to test the effect of the independent variables together on dependent variable based on the Anova table output, The following table shows that significance value of 1.45E-30 associated with the calculated F value F = 1483.353, is less than 0.01 (<0.01) signifying that the independent variables statistically significantly predict the ESG Index (dependent variable) at 1% level of significance i.e., it can be concluded that SENSEX index and NIFTY50 index together influence the growth of ESG Index.

Variables Entered/Removed ^a			
Model	Variables Entered	Variables Removed	Method
1	D1, nifty_log, sensex_log ^b		Enter
a. Dependent Variable: esg_log			
b. All requested variables entered.			

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.986 ^a	.973	.972	.05611	.432

a. Predictors: (Constant), D1, nifty_log, sensex_log
b. Dependent Variable: esg_log

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.584	3	4.528	1438.353	<.001 ^b
	Residual	.381	121	.003		
	Total	13.965	124			

a. Dependent Variable: esg_log
b. Predictors: (Constant), D1, nifty_log, sensex_log

Coefficient table

The coefficients table below provides information regarding the statistical significance of each of the independent variables. It tests whether the unstandardized or standardized coefficients are equal to zero. The unstandardized coefficients indicate how much the dependent variable varies with an independent variable when all the other independent variables are held constant. The general form of the regression equation with log-log model is

$$\text{LN (ESG INDEX)} = B_0 + B_1 \text{LN(NIFTY50)} + B_2 \text{LN(SENSEX)} + B_3 D1 + e_i$$

The table below suggests that the t-test finds all including the intercept and the interdependent variables to be highly significant at 1% significance level as the corresponding p-value (sig.< 0.01) is less than 0.01 and thus, it can be concluded that the coefficients are significantly different from zero. Thus, the general form of the equation so obtained to predict ESG Index from the independent variables is

$$\text{LN (ESG INDEX)} = -3.842 - 0.509 \text{LN(NIFTY50)} + 1.333 \text{LN(SENSEX)} + 0.122 D1 + e_i$$

Suggesting

- $B_0 = -3.842$
- $B_1 = -0.509$ i.e., for each one percent increase in NIFTY50 INDEX there would be a 0.509 percent decrease in ESG INDEX.

Coefficients ^a									
Model		Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B		Collinearity Statistics
		B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound	Tolerance VIF
1	(Constant)	-3.842	.517		-7.434	<.001	-4.865	-2.819	
	nifty_log	-.509	.370	-.518	-1.377	.171	-1.241	.223	.002 627.517
	sensex_log	1.333	.373	1.376	3.577	<.001	.595	2.071	.002 656.717
	D1	.122	.019	.163	6.526	<.001	.085	.159	.363 2.758

a. Dependent Variable: esg_log

ld be a corresponding 0.509% of decrease in ESG Index, holding all other variables constant.

- B2 = 1.333 i.e., for each one percent increase in SENSEX INDEX there would be a corresponding 1.333% of increase in ESG Index, holding all other variables constant.
- B3 = 0.122 i.e., on an average post covid period brought a growth in the ESG Index by 0.122 %

Conclusion

The results of this study indicate that the growth rate of SENSEX index and NIFTY50 index significantly influence the growth rate of ESG Index. Therefore, the first null hypothesis (H₀) which states that there is no impact of the SENSEX index and NIFTY50 index on the ESG Index is rejected. Furthermore, individually also the independent variables i.e.- SENSEX index and NIFTY50 index have a significant effect on ESG Index. Therefore, all the other null hypothesis which state that the aforesaid independent variables do not have a

significant effect on ESG Index can be rejected. The results of subsequent studies found that the model for studying the influence on the ESG Index with the above-mentioned independent variables is best studied using the multiple linear regression model with log-log model and also taking into account the post-covid and pre-covid times.

In summary, even though there is a model that has statistically significant and possibly economically significant independent variables, the variables chosen are probably not the best measures of ESG Index. There is autocorrelation and multicollinearity present among the independent variables selected. However, due to limited scope of knowledge and resources, the regression analysis was run with autocorrelation persistent in the data collected. Limitations of this research are presence of autocorrelation, multicollinearity, short period of observations and absence of other suitable variables due to the lack of available and comparable data.

Bibliography

S&P 500 ESG Index, NIFTY 50 Index, BSE SENSEX Index

<https://economictimes.indiatimes.com/markets/sp-bse-100-esg-index/indexsummary>

[Nifty 50 Historical Rates - Investing.com India](#)

[Sensex Historical Rates - Investing.com India](#)

[S&P BSE SENSEX \(^BSESN\) Historical Data - Yahoo Finance](#)

[Companiesmarketcap.com](#)

www.macrotrends.net

For Sensex index

https://cibgp.com/article_17905_60c155a3f5a83a9256a60056033c2fae.pdf

<https://link.springer.com/article/10.1007/s12197-022-09580-0>

https://www.researchgate.net/figure/Correlation-between-the-ESG-NIFTY-and-the-CNX-500-Indexes-levels-and-returns_tbl3_273329340

For nifty-50

[https://images.assettype.com/bloombergquint/2022-03/9d1e5379-2ca3-41d8-9735-2fcd9cdd593e/Dolat Capital India ESG Report 10 March 2022.pdf](https://images.assettype.com/bloombergquint/2022-03/9d1e5379-2ca3-41d8-9735-2fcd9cdd593e/Dolat_Capital_India_ESG_Report_10_March_2022.pdf)

<https://economictimes.indiatimes.com/markets/stocks/news/top-50-esg-investments-outpace-benchmark-index-nifty50/articleshow/86971097.cms>

For literature review

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3376752

[https://www.researchgate.net/publication/343565338 Does the ESG Index Affect Stock Return Evidence from the Eurostoxx50](https://www.researchgate.net/publication/343565338_Does_the_ESG_Index_Affect_Stock_Return_Evidence_from_the_Eurostoxx50)

https://cibgp.com/article_17905_60c155a3f5a83a9256a60056033c2fae.pdf

company's carbon footprint, waste management practices, and water usage, among others.

- Social factors may include labour standards, community engagement, and human rights practices.
- Governance factors require companies to have diverse leadership, avoid conflicts of interest and have transparency in their operations.

Companies that adopt ESG factors into their operations aim to create sustainable value for all stakeholders, including shareholders, employees, customers, and society at large.

In India, the adoption of ESG disclosures has been driven by a range of factors. First, there is a growing awareness among governments, consumers, and investors of the social and environmental impact of business activities. Second, regulatory bodies in India like SEBI have started to recognise the importance of ESG disclosures and have taken steps to incentivize and enforce these practices. Third, investors have begun to recognize the long-term value of ESG investing and are increasingly factoring these considerations into their investment decisions. Finally, the growing amount of ESG Rating Providers has led to more discussions about ESGs

This research paper will provide an overview of the current state of ESG practices in India and their impact on society. It will examine the challenges for companies in adopting ESG disclosures and the regulatory framework governing these practices. The paper will look at the trends of ESG disclosures in India, analyze the impacts of ESGs on various factors, and look at case studies of different countries to demonstrate the effect of ESGs further.

Methodology

This is a qualitative research in which took upon multiple studies and drew our conclusion. The studies included both primary and secondary data studies. We also analyzed global reporting initiatives to help us in our study. The 'Global Reporting Initiative. (2021, July 9). 2020 sustainability reporting trends in South Asia - (Bangladesh, India, Sri Lanka). Policy Commons' stated that in India 92% of ESG reports are based on GRI standards and take the lead on the total number of sustainability reports. From all the research we have concluded that multiple works show a positive relationship between ESG reporting and financial performance, however, a few also show negative or little to no impact on the performance.

ESG Data Trend Analysis

India, at the UN Climate Change Conference in Glasgow, has pledged to achieve net zero emissions by 2070. This is consistent with the regulations that Indian authorities have established in recent years, which show that India has taken serious steps towards decarbonization by encouraging and requiring market participants to adopt sustainable business practices. The adoption of extensive sustainability and Environment, Social, and Governance ("ESG") related disclosures to encourage businesses to go beyond the conventional finance-centric models is one sign of the same.

If a company ignores sustainability, there is a potential that either its business processes may be rendered obsolete in the future as a result of legal or regulatory changes that may outlaw specific business practices, or that the market for its products or services will decline. ESG disclosures are therefore extremely important for investors for the following r-

asons:

- Incorporating climate-related factors into the processes of asset value and financial allocation;
- Evaluating the effects of a company's business practices on the environment and society
- Estimating the potential impact of climate change on a company's long-term financial viability.

Evolution of ESG Disclosures in India

In 2012 Business Responsibility Report (BRR) was introduced by SEBI for the top 100 listed companies by market capitalization, along with their annual reports.

This requirement was increased to the top 500 companies by market capitalization in 2015.

A circular on "Disclosure Requirements for Issue and Listing of Green Debt Securities" was released by SEBI in 2017 to establish the legal framework for the issuing of green debt securities in India and fostering investor confidence.

The BRR was not well regarded because it supplied very little useful ESG data and virtually exclusively based its ESG disclosure obligations on the nine sustainability criteria from the MCA ESG Guidelines (usually, as a Y/N questionnaire).

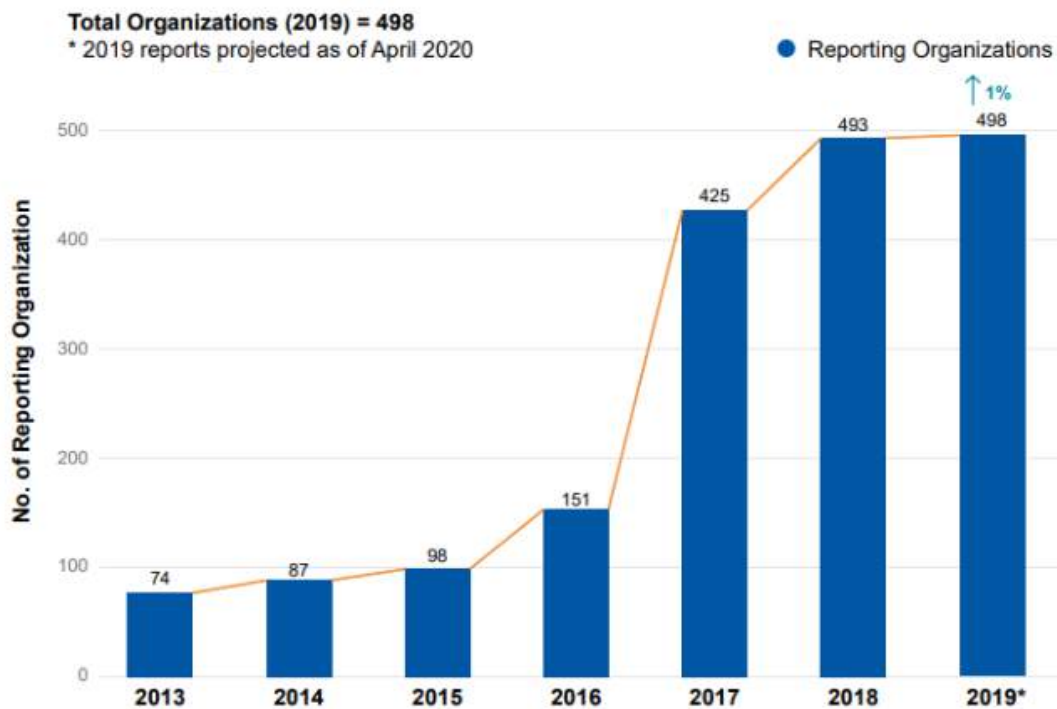
The BRSR framework will be implemented in May 2021 after SEBI modified Rule 34(2) (f) of the LODR Regulations to further enhance the ESG disclosure environment in India. The current Business Responsibility Report ("BRR") will be replaced by this. The nine National Guidelines for Responsible Business Conduct ("NGBRC") principles are aligned with BRSR.

The Business Responsibility and Sustainability Reporting (BRSR) is a framework developed by the Ministry of Corporate Affairs (MCA) and draws inspiration from other international reporting frameworks, such as the GRI standards. The top 1,000 listed businesses by market capitalization must now submit reports by the BRSR starting in FY23, according to a directive from the Securities and Exchange Board of India (SEBI). More than 175 businesses voluntarily reported using the BRSR framework in FY22. SEBI said assurance becomes key for enhancing the credibility of disclosure and investor confidence, as it becomes mandatory from this financial year and stakeholders such as investors and ESG rating providers placing reliance on disclosures made in the BRSR.

ESG RATING PROVIDERS

ESG data for a given firm is mostly gathered by ESG rating providers ("ERPs") from the company's disclosures, news articles, third-party reports, and surveys. SEBI in January 2022 proposed a regulatory framework for ERPs that rated companies listed in the stock market due to the lack of transparency in methodology and rating, potential conflicts of interest, and a lack of India-specific considerations. Only credit rating agencies and research analysts should be eligible for such accreditation. SEBI has suggested standards for ERP accreditation that consider factors such as net worth, expertise, sustainability, infrastructure, employee calibre, and technical know-how. SEBI has recommended two rating categories, impact rating and risk rating, which do not evaluate environmental and social issues while allowing ERPs to provide other customized rating categories.

TRENDS



There is quite an upward trend in sustainability reports in India. A report by the Global Reporting Initiative (GRI) highlights this movement

A big part of this trend might be attributed to the revised SEBI guidelines which mandate the top companies to adhere to BRR/BRSR disclosure requirements. The 2023 guidelines will lead to even more companies joining this movement.

Despite the drivers of the rising trend of ESG reporting in India, companies face several challenges in implementing ESG reporting. One of the main challenges is the lack of standardization in ESG reporting frameworks. This can also make it difficult for investors to compare the ESG performance of different companies. While there are efforts to fix this in action, it is important to highlight this side of ESG reporting

Another challenge is the lack of reliable data on ESG performance. Many companies

do not have systems in place to collect and analyze ESG data, which can make it difficult to report on their ESG performance. This can also make it difficult for investors to assess the ESG performance of companies and make informed investment decisions.

ESG reporting is a growing trend in India, driven by regulatory requirements, investor demand, and increasing public awareness of ESG issues. Despite these challenges, there are several benefits that ESG reporting can bring to companies and society as a whole. For companies, ESG reporting can help to identify areas of risk and opportunity, improve operational efficiency, and enhance their reputation with stakeholders. It can also help companies to attract and retain employees, customers, and investors who are increasingly interested in ESG issues. For society, ESG reporting can promote sustainable development, improve social and environmental outcomes, and enhance corporate governance. Companies can demonstrate their commitment to respons-

ible business practices and contribute to a more sustainable future by reporting on their ESG performance.

Value Creation by ESGs

In global economies, it has been observed that ESG has been creating value for the company both directly and indirectly. A compelling ESG proposition enables businesses to enter new markets and grow within existing ones. Governmental bodies are more inclined to grant access, approvals, and licenses—which open up new growth opportunities—to corporate actors when they have their trust. For instance, the for-profit businesses chosen to participate in a recent, sizable public-private infrastructure project in Long Beach, California, were screened based on their historical success in sustainability. Better ESG performance has benefited the mining industry as well.

ESG can notably reduce the cost of production. FedEx, for its part, aims to convert its entire 35,000-vehicle fleet to electric or hybrid engines; to date, 20 per cent have been converted, which has already reduced fuel consumption by more than 50 million gallons

Investor studies in particular tend to show a considerable association between better financial performance and lower sustainability-related risk.

Such occurrences have given researchers access to rare datasets. According to Fernández et al. (2019), German green mutual funds performed comparably to conventional funds during the financial crisis (2007–2009) but outperformed SRI funds in terms of risk-adjusted returns.

The static and dynamic results of the study indicate an overall positive and significant impact of total ESG on the market value and earnings per share of firms. Individual

dimensions of ESG also have a positive impact on the financial performance of the firm.

Decarbonization initiatives have been the subject of relatively recent research, but it has found compelling evidence that these measures improve business and investor financial performance. We confirmed the findings of DiazRainey et al. (2017) and Zhang et al. (2019) that not a single article on climate change was published throughout the analysis period in any of the three prestigious finance journals (Journal of Finance, Journal of Financial Economics, and Review of Financial Studies). Yet, 59 studies on the connection between low-carbon strategies and financial success have been published elsewhere in the last five years; the majority of these studies have found a favourable outcome. Much of the research, was concerned with risk mitigation. For instance, Cheema-Fox et al. (2019) investigated the creation of decarbonization factors and discovered that various decarbonization factors

Key Highlights

1. With longer time horizons, ESG-related improvements in financial performance become more noticeable.
2. ESG integration generally appears to outperform negative screening methods as an investment strategy. According to a recent Rockefeller Asset Management report, there will be a growing difference between "Leaders" and "Improvers" when it comes to ESG integration, with the latter having the potential to produce uncorrelated alpha over the long term.
3. ESG investing offers downside protection, particularly in times of social or economic crises.

4. Due to some mediating factors, including better risk management and increased innovation, sustainability programmes at firms seem to be a major contributor to improved financial success.

5. Financial performance is not driven by ESG disclosure alone. The association between ESG disclosure, FRQ, and investment efficiency is favourable according to empirical findings, and it is particularly significant in the underinvestment and high FRQ subsamples. According to the findings, ESG disclosure increases transparency, reduces information asymmetry, and improves investment performance.

Negative Correlation

dESG investment has a detrimental effect on revenue or market value. Brammer et al. (2006) use market returns to assess the influence of corporate social performance on UK-based firms and discover that companies with low social scores outperform the market. The financial success of the 54 listed Italian companies studied by Landi and Sciarelli (2019) from 2007 to 2015 was found to be negatively correlated with their ESG scores.

The relationship between ESG ratings and the financial results of ETFs (Exchange Traded Funds) during Covid-19 in Canada is examined by Folger-Laronde et al. in 2020. They conclude that strong ESG performance in ETFs does not protect during a major market downturn.

Nollet et al. (2016) examine the relationship between the social and financial success of S&P 500 firms from 2007 to 2011 using accounting and market metrics. In contrast to non-linear models, they discover evidence of a negative relationship in linear models. Using global

MSCI ESG ratings, Marsat and Williams (2011) demonstrate a negative association between CSR rating and corporate value. A few multi-country studies have also reported a negative association. A study by Duque-Grisales and Aguilera-Caracue (2021) from 2011 to 2015 looks at 104 multinational corporations in Latin America. Their data suggest a poor correlation between these organizations' financial performance and ESG rankings. Garcia and Orsato (2020) analyze developing and industrialized nations using data from 2165 enterprises between 2007 and 2014. They demonstrate that there is a poor correlation between financial performance and ESG rankings in emerging markets.

Case studies from different types of economies around the world

Today, a lot of companies from around the world can be seen moving towards long-term sustainable goals of maximizing profits instead of short-term goals. It's been realized that a company's financial performance and profitability can be affected by its ESG performance. Recent research shows that good ESG performance could improve financial performance in some countries. Integration of ESG factors in the decision-making process is being encouraged by the United Nations Environmental Programme Financial Initiative (UNEP FI). Since then, ESG has gradually evolved into one of the three primary dimensions used by the international community to assess the ability of economic entities to achieve sustainable development. Many experts believe that ESG factors can drive long-term economic growth. In addition, there is growing demand from investors and consumers for companies to demonstrate good ESG performance. This is leading m-

ore and more companies to adopt sustainable practices and improve their ESG performance, which can help them attract investment and customers.

China

Empirical studies have shown a positive correlation between ESG indices and stock market performance in China. State-owned enterprises have a lesser impact, and secondary industries are more affected. The study analyzed the relationship using the fixed effect model and the generalized method of moments model and concluded that improved ESG indices can lead to enhanced stock market performance.

China's power generation groups found that good ESG performance can lead to good financial performance. Companies that prioritize ESG development will help stabilize and stimulate the capital market's long-term growth. The S&P 5000's ESG index has a higher long-term return and lower volatility than the S&P 500 index. Disclosure of ESGs will help balance the interests of companies and external stakeholders, benefiting the capital market's stability. Due to increasing demand from investors and consumers, China's economic growth is now very dependent on ESG considerations. Companies that prioritize sustainability have a lot of growth opportunities; however, challenges like the balance between economic growth and social concerns are still highly important to look into.

BRICS

BRICS (Brazil, Russia, India, China, and South Africa) economic review, involving analysis of ESG performance in sensitive industries, shows that they show superior environmental performance. Different regression models are used to assess the p-

formance of companies, and different regression models are used for different portfolios. The various portfolios are built using previous research and the ESG scores of companies. It was concluded that there is a chance for investors to get abnormally high returns by buying high ESG-performance stocks and selling low ESG-performance stocks. Countries with higher economic growth, such as the BRICS, may allow companies to invest more in ESG practices, limiting the long-term impact of ESG costs. Most studies have pointed to a positive ESG-CFP correlation, but no agreement between sensitive industries entails a positive ESG-CFP correlation.

Nordic Countries

The ESG Index states that Finland is the country with the highest ESG score, with sustainable investments accounting for 36.7% of total assets under management in 2018. Previous studies have shown that countries that focused on investing in ESG performance in the past are more fiscally sustainable in the present than those that did not. However, improving ESG performance requires an increase in expenditure, which increases the debt burden in the short term, but improves fiscal sustainability in the long run.

In Nordic countries, there is a significant positive relationship between ESG ratings and financial market performance measurement (Tobin's Q). However, there was no statistically significant relationship between the ESG rating and the accounting performance measurement ROA. The conclusion was reached that investors consider more factors than accounting returns when investing, with the environmental factor being the most important. The findings of the study revealed that ESG have a positive correlation with financial market perform-

ance, and it can be concluded that Nordic investors also take note of factors other than accounting returns when investing.

Investors are more influenced by the governance factor than the environmental factor in Nordic countries. Clark et al. (2015) found that companies that have proper environmental policies perform better than those that do not and that implementing such policies increases Tobin's Q. As a result of the positive relationship between ESG and financial market performance, incorporating ESG into corporate strategies should be worthwhile for firms listed on Nordic stock exchanges. This is because firms with superior ESG performance in Nordic markets appear more appealing to investors and have easier access to financial capital.

South Korea

An investigation in South Korea examined the effect of ESG activities on financial performance during a time of business crisis. It was found that firms with high ESG scores had a smaller reduction in earnings compared to others. ESG activities had a significant effect on increasing profitability and decreasing earnings volatility during the COVID-19 pandemic. It is inferred that ESG activities will become an important metric for market participants' decision-making in an uncertain environment.

Key Highlights

According to the findings of the Schroeder investment survey, emerging market investors place a higher value on the concept of ESG investment than investors in developed countries. From 2012 to 2014, global investment in ESG-related companies increased from 17 trillion to 28 trillion dollars. As can be seen, the concept

of ESG investment has become one of the world's hottest topics.

Regulators must encourage ESG activities in businesses to increase market stability and improve the overall business environment. This includes encouraging corporate ESG activities and managing their performance through mandatory disclosure of ESG performance. Many stock exchanges around the world have implemented ESG disclosure requirements or guidelines for listed companies, such as those in the UK, Brazil, Canada, India, Malaysia, Norway, South Africa, Sri Lanka, Thailand, Germany, the Philippines, Poland, Singapore, and Turkey.

Conclusion

In conclusion, the adoption of Environmental, Social, and Governance (ESG) practices in India has been gaining momentum over the years. Regarding ESG disclosure trends, we have seen a large increase in ESG disclosures due to SEBI regulations.

We found, ESG investments tend to offer downside protection, particularly in times of social or economic crises. Sustainability programmes also seem to be a major contributor to improved financial success. The association between ESG disclosure, FRQ, and investment efficiency is favourable according to empirical findings, and it is particularly significant in the underinvestment and high FRQ subsamples. According to the findings, ESG disclosure increases transparency, reduces information asymmetry, and improves investment performance. Though many studies have also shown ESGs to have a detrimental effect, most studies have shown the opposite.

Lastly, with the case studies, investors in d-

developed nations regard the idea of ESG investments less than those in emerging markets, according to the results of the Schroeder investing study. It has been observed in various economies that attention to ESG performance has led to the growth of the financial performance of the firms, whether with the E (Environmental), S (Social) or G (Governance) factor. The importance and

impact of ESG factors of ESG on investors vary from economy to economy depending on various factors like political background, social background, etc. Disclosure of ESG has also led to financial growth due to transparency and improved trust among investors and consumers. It is suggested that the Indian economy also follow the example of countries like Finland, Sweden, etc. to increase the performance of the economy even further.

Bibliography

1. Global Reporting Initiative. (2021, July 9). 2020 sustainability reporting trends in South Asia - (Bangladesh, India, Sri Lanka). Policy Commons. Retrieved from <https://www.globalreporting.org/media/i4udupws/sa-trends-2019-publication.pdf>
2. Consultation Paper on ESG Disclosures, Ratings and Investing. (2023, Feb 20) Retrieved From https://www.sebi.gov.in/reports-and-statistics/reports/feb-2023/consultation-paper-on-esg-disclosures-ratings-and-investing_68193.html
3. SEBI mulls regulatory framework on ESG disclosure, ratings, and investing. (2023, Feb 21) Retrieved from the Hindu Business Online Website <https://www.thehindubusinessline.com/markets/sebi-mulls-regulatory-framework-on-esg-disclosure-ratings-investing/article66534968.ece>
4. Deng, X., & Cheng, X. (2019). Can ESG indices improve the enterprises' stock market performance?—An empirical study from China. *Sustainability*, 11(17), 4765. Retrieved from- GOOGLE SCHOLAR
5. Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation companies. *Sustainability*, 10(8), 2607. Retrieved from- GOOGLE SCHOLAR
6. Järvinen, J. (2022). ESG performance in emerging markets: Evidence from the BRICS countries. Retrieved from- GOOGLE SCHOLAR
7. Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. *Journal of cleaner production*, 150, 135-147. Retrieved from- GOOGLE SCHOLAR
8. Dahlberg, L., & Wiklund, F. (2018). ESG Investing In Nordic Countries: An Analysis of the Shareholder View of creating value. Retrieved from- GOOGLE SCHOLAR
9. Jaber, A. ESG performance and fiscal sustainability: an empirical assessment in advanced economies. Retrieved from- GOOGLE SCHOLAR
10. Bannier, C. E., Bofinger, Y., & Rock, B. (2019). Doing safe by doing good: ESG investing and corporate social responsibility in the US and Europe (No. 621). CFS Working Paper Series. GOOGLE SCHOLAR
11. Hwang, J., Kim, H., & Jung, D. (2021). The effect of ESG activities on financial performance during the covid-19 pandemic—evidence from Korea. *Sustainability*, 13(20), 11362. GOOGLE SCHOLAR
12. AYDOĞMUŞ, M., GÜLAY, G., & ERGUN, K. (2022). Impact of ESG performance on firm value and profitability. *Borsa Istanbul Review*. <https://doi.org/10.1016/j.bir.2022.11.006>

Bibliography

13. Friede, G., Busch, T., & Bassen, A. (2015). *ESG and financial performance: aggregated evidence from more than 2000 empirical studies*. *Journal of sustainable finance & investment*, 5(4), 210-233. <https://www.tandfonline.com/doi/full/10.1080/20430795.2015.1118917>

14. Kim, S. H., & Li, Z. F. (2021, March 1). *Understanding the Impact of ESG Practices in Corporate Finance*. *Sustainability*; MDPI. <https://doi.org/10.3390/su13073746>

15. *Five ways that ESG creates value*. (2019, November 14). McKinsey & Company. <https://www.mckinsey.com/capabilities/strategy-and-corporate-finance/our-insights/five-ways-that-esg-creates-value>

STATE OF ECONOMICS: A SKETCH

Annabhula J C Bose

Professor, Department of Economics, Shri Ram College of Commerce, Delhi



Abstract

How conventional conservative economics is useless to understand the real world, leave alone change it for the better, is highlighted. After which, a feel of the unconventional radical critique of it is offered. In conclusion, it is pointed out that radical political economics based on social class and economic power may turn out to be a credible alternative for understanding as also changing the real world for the better.

Introduction

A few students express, off and on, to me, their displeasure and boredom with the economics they mechanically do. These unhappy and restless economics students echo the concerns of the students worldwide who had nine years ago called

for shakeup of the way economics is taught in terms of the dominant mainstream free-market theories (Inman, 2014).

Bhaduri (2023) has succinctly captured, for all these students, the pathetic state of conventional conservative economics thus: "Economics is a puzzling subject because it operates at different levels. At one level, it is 'high theory', increasingly dominated these days by sophisticated mathematical and statistical techniques.. It is dominated by techniques rather than insights and, often worse—a justification of the mythical world of a perfectly functioning market economy. At best only minor blemishes of the market mechanism are discussed, like a failure of the market to function perfectly due to imperfect knowledge. In contrast, more important issues about how economic power is acquired and used to manipulate

singly failed to deliver anything of substance that a non-economist can appreciate, except repeating the message that 'more free market-oriented reforms' and more austerity for government spending are virtues in all situations. Its somewhat precarious respectability as an academic discipline continues today in a patron-client relation. Multilateral agencies fund research in universities and institutes, and large bank and corporations award academic prizes advertised as 'good research' worth emulating. Some well-intentioned professional economists are aware of this state of affairs but can do little to change the system. So, they often tend to engage in empirically oriented research that allows the use of more sophisticated statistical techniques even if the data does not always justify it. This, too, is largely technique-driven empirical research meant for acquiring respectability, not new knowledge. Moreover, there is nothing called pure empirical research without theory in either framing the questions or interpreting the results. "

What is the way out of this morass? Is there any hope?

We need to examine alternative theoretical formulations and empirical research associated with them.

A Critique

An elementary taste of the substantive critique that Nell (1972) had made against conservative or orthodox economics can be obtained thus:

"Basically, orthodox theory is a theory of markets and market interdependence. It is a theory of general equilibrium in exchange, extended almost as an afterthought, to cover production and distribution. It is not a theory of a social system, still less of economic power and social class. Households and firms are considered only as market agents, never as

parts of a social structure. Their initial endowments, wealth, skills and property, are taken as given. Moreover, the object of the theory is to demonstrate the tendency towards equilibrium; class and sectoral conflict is therefore ruled out almost by assumption. As a result, the orthodox approach has comparatively little interesting to say about such important socio-economic questions as the distribution of wealth and income. It cannot say how these came about; it cannot say how different they might be under another kind of economic system, and it cannot describe the evolution and development of the institution of private property...Orthodox economics tries to show that markets allocate scarce resources according to relative efficiency; political economics tries to show that markets distribute income according to relative power.

It is good to know about efficiency; but in our world, it tends to be subservient to power...Economic power ultimately rests on the ability to inflict a loss—the stick. A subsidiary form is the ability to bribe—the carrot. If economists paid as much attention to bribery and extortion as they do to marginal utility, we should be able to develop rough quantitative indices, by means of which one could sensibly discuss (and plan strategy to alter) the distribution of economic power in society...By failing to appreciate this, and consequently failing also to accord the distribution of income between labour and capital a properly central role, orthodox economics has become cut off from the central economic issues of our time, drifting further into ever more abstract and mathematically sophisticated reformulations of essentially the same propositions. The heart of the matter is the concept of capital, and its relation to social class and economic power. It is good to know about efficiency;

but in our world, it tends to be subservient to power...Economic power ultimately rests on the ability to inflict a loss—the stick. A subsidiary form is the ability to bribe—the carrot. If economists paid as much attention to bribery and extortion as they do to marginal utility, we should be able to develop rough quantitative indices, by means of which one could sensibly discuss (and plan strategy to alter) the distribution of economic power in society...By failing to appreciate this, and consequently failing also to accord the distribution of income between labour and capital a properly central role, orthodox economics has become cut off from the central economic issues of our time, drifting further into ever more abstract and mathematically sophisticated reformulations of essentially the same propositions. The heart of the matter is the concept of capital, and its relation to social class and economic power. When this is put right...economic theory can once again speak to the critical issues of the day.”

An Alternative

Nell’s critique as above belongs to the radical political economics or simply radical economics tradition as an alternative to the conventional conservative economics. And this alternative is not monolithic.

To be precise and context-specific, by ‘radical economists’ is meant the New Left economists who had emerged in America such as Howard Sherman and Weisskopf (2012) apart from Nell. Albeit influenced by Marxism, they “stress the need for everyone to think independently, so they will not blindly follow Marx or anyone else” (Sherman, 1984).

“To be a radical economist means that one must be burning with anger at the idiocy of large-scale unemployment caused by capitalism, plus the wars that have occurred

because of that system. To be a radical economist means that one must not only be clear on the analysis of unemployment and of war, but also on the means to get rid of them forever. To be a radical economist means that one must not only analyze the injustice and damage caused by capitalism, plus the ways to end all of these problems, but must also constantly fight to abolish all those institutions leading to these ugly phenomena. To be a radical economist means to have an optimistic vision of the future when these institutions have all been changed and the words “war” and “unemployment” refer to a long gone past. It is this optimistic vision given by radical economics that can keep one fighting and publishing radical economics for a long time.” Thus wrote Sherman (2011).

In general, radical economists, unlike the mainstream ones, focus on “conflict rather than harmony, power rather than assumptions of equality, class rather than individual behaviour, dynamics rather than statics, and on fundamental rather than marginal changes...Radicals see society as an evolving unity and they see all social problems as interrelated; thus, it makes no sense to them to examine problems from the viewpoint of one discipline...History...is an important part of the radical paradigm.

Radicals also reject any pure theory in favour of a careful examination of existing institutions in a given historical context, and they believe it appropriate to build theoretical structures only on such realistic bases...There is a class conflict because most people work for a living, getting wages or salaries for their labour; the capitalist class, however, owns the corporations and their products. Because the capitalist class makes its profit from the labour of workers, there is an inherent conflict. It does no good to wish away this conflict; the conflict can be ended only by removing the basis for it. Radicals contend

that the exchange between workers and capitalists is not a simple exchange between equals, but that capitalist employers have far more power than individual workers. This power is seen not only in wage bargaining, but also in influence over government. Finally, radical economists consider it important to contribute to the study of comparative systems. They believe it is not sufficient to examine marginal reforms within our capitalist system; it is necessary also to examine socio-economic alternatives" (Sherman, 1984).

In particular, their specific applied contributions can be powerfully found in the areas of price and value theory; labour and labour segmentation theory; business cycles; industrial organisation and monopoly; government and business; imperialism and underdevelopment; comparative economic systems; financial regulation and financial crisis; history of thought; methodology; racial and gender discrimination; the environment; and many more (Sherman, 1984; 2011).

There is also an interesting as also innovative 'really radical economics'. This is a feminist approach (Nelson, 2013). It questions the 'dismantle the capitalist machine' version of radical thinking as wrong and posits acting on the transformational potential that exists within the economy as it is right now, as correct. It is possible to change capitalism to be socially equitable, ecologically sustainable, and personally and spiritually satisfying. The argumentation is good, and persuasively goes like this:

"Academic economics has long bamboozled intellectuals and activists - from across the political spectrum - into adopting narrow ways of thinking about business and commerce. Mainstream economic theory claims that in economic life, people are driven by self-interest.

Firms have no choice but to maximize profits. Individuals maximize satisfaction from consumption. Markets are invariably distant and impersonal. And people act as rational, individual agents when exchanging goods, labour power, and money. Building on this image of the machine-like economy, neoliberal thinkers treat the ideal of the competitive market as the summum bonum (or supreme good). Taking inspiration from a few selective passages from Adam Smith, they argue that the "invisible hand" of the free market causes individual selfishness to serve the social good. Since social welfare programs or government regulations would hamper this mechanism, it is said that they must be avoided."

By contrast, Marxist economists "envision a revolutionary displacement of the capitalist system by an alternative economy of solidarity... Marxist economists portray capitalist economies as populated by firms that are driven to extract the last possible dollar of profit. People are duped by the marketers of consumer products, and workers are alienated from their humanity by their role in the economic machine. The foundations of community are seen as corrupted by inhuman exchange relations and by the invidious, society-destroying power of money. So now the capitalist economy is the summum malum (or supreme evil) instead."

"Note, however, that both neoliberals and these Marxist critics believe that market economies are essentially machines - entities that are fundamentally separated from society and human emotions, and from ethics and interdependence."

All this needs to be reexamined.

"Take, for example, the belief that firms must maximize profit. One might think that economists discovered this belief by studying businesses, but in fact they invented it. It's a convenient assumption

it turns the analysis of firms' behaviour into a simple calculus problem, and that satisfies economists' desire for physics-like regularities. But profit maximization isn't actually legally mandated. Nor is it an inevitable result of competition. If anything, life here is imitating fiction, since business leaders and investors increasingly appear to believe that maximizing profits (for which read greed) is not only permissible but required... markets and corporations don't run coolly and objectively. Instead, they are rife with human emotions such as care, desire and revenge. They rely on the creation of beliefs about the future, run on human ties of trust, and are built on social norms and legal institutions. If we put aside the distorting lenses provided by dominant economic theories, it's obvious that businesses can pursue a variety of goals alongside returning a profit to their shareholders. These goals can be socially helpful (like innovative, high-quality products, jobs, environmental protection and non-discrimination), or socially harmful (such as making extra profits at the expense of labour and the environment, or promoting excessive executive compensation)...When economic life is imagined to be directed by the "laws of the market," it is set apart from the influence of these values and practices. The old mechanistic thinking essentially gives current corporations an ethical free pass by providing them with the excuse that "the system made me do it." This cleft disappears, however, when the real, human nature of the economy is recognized, allowing us to align ourselves with positive change wherever it is happening...Citizen boycotts, shareholder resolutions, and other public campaigns are time-honoured ways of calling powers to account. When we undertake such strategies for change, we may find that there are many people inside these companies who also want to

work for a better world. This is deep change. Economies have been imagined in macho terms of machines, control, and the aggressive pursuit of growth for so long that it can be difficult to think otherwise. Emotions, care, and interdependence have been imagined as only belonging to a more feminine sphere, so pointing out their relevance for commerce risks provoking accusations of naiveté...At its root the economy is a living, complex organism. Rather than envisioning economic transformation as akin to overturning an unresponsive juggernaut, it may be more productive to see it in terms of tending to a fragile body. Avoiding drawing "us" versus "them" battle lines, and acting on the transformational potential that exists within the economy as it is right now, opens up new arenas for constructive action. Now that would be radical."

Conclusion

Most courses on economics present only the traditional point of view, i.e. the views of conventional conservative economics about a problem-free world. That is why students are opposing them. It is high time, therefore, we knew the whole spectrum of views from very conservative, traditional views to non-traditional, progressive or radical views, and find out which views help us solve the problems that people are facing. In doing so, radical economics may turn out to be the only meaningful credible alternative.

The best exposure for this can be obtained from Sherman et al. (2015), who really makes economics an exciting subject for anyone who cares at all about the world we live in and about how to make it better for the people at large. They present the history of all of the points of view in economics. They explain the traditional views of the Classical and Neoclassical economists. They also explain the non-traditional views of Marx, Veblen, and Keynes, as well as many other progressive

such as feminist economics. For microeconomics, while the usual texts discuss only the traditional, neoclassical views, they present the outlooks of feminists, institutionalists, Marxists, Post Keynesians and other progressive economists before discussing the traditional Neoclassical approach. They also address problems such as poverty, discrimination and the environment by presenting the traditional neoclassical approach in full along with the criticisms of it. For macroeconomics, they explore business cycles, unemployment, and inflation. They present the traditional views from J. B. Say to modern Neoclassicals. They also present the Keynesian, Veblenian, Marxist and other progressive approaches. Finally, they deal with the debates now raging over international relations and globalization by reckoning with both traditional and progressive sides of the arguments.

In doing all this, they present the main issues in the field as a contest of ideas among thinkers who seek to both interpret the world in various ways and to change the world, in equally various ways.

For example, in macroeconomics, they make it clear that the subject is anything but a frozen body of knowledge requiring that students merely memorize a standard collection of graphs. There are burning questions to face, such as whether capitalist economies can deliver an abundance of decent employment opportunities—something approximating full employment—without government intervention into the operation of free markets. And if the answer to that question is “no”, then what types of government interventions, if any, might be capable of delivering full employment? Likewise, in microeconomics, can we rely on the competitive pressures of a free market economy to, for example, force businesses

to operate at an acceptable level of environmental responsibility? And if the free market is not effective for addressing global warming and other pressing environmental concerns, then what do we do about it?

Because of Sherman et al. (2015), who do not give students all the answers, but force them to think in new and unexpected ways, the students will enjoy studying economics as a way of interpreting as also changing the world for the better.

Bibliography

Bhaduri, Amit (2023). Foreword. In Archana Aggarwal. Labouring Lives. LeftWord.

Inman, Phillip (2014). May 4: <https://www.theguardian.com/education/2014/may/04/economics-students-overhaul-subject-teaching>

Nell, Edward (1972). Economics: The Revival of Political Economy. In Robin Blackburn (ed.). Ideology in Social Science: Readings in Critical Social Theory. Fontana/Collins.

Nelson, Julie A. (2013). Really Radical Economics: <https://www.opendemocracy.net/en/transformation/really-radical-economics/>

Sherman, Howard (2011). Radical Economists in the 21st Century. Review of Radical Political Economics. 43 (3).

Sherman, Howard (1984). Contemporary Radical Economics. The Journal of Economic Education. 15 (4). Autumn.

Sherman, Howard et al. (2015). Economics: An Introduction to Traditional and Progressive Views. Routledge.

Weisskopf, Thomas (2012). The Origins and Evolution of Radical Political Economics. University of Michigan. September 25: https://sites.lsa.umich.edu/tomweisskopf/wp-content/uploads/sites/278/2015/06/weisskopf.port_huron_talk.pdf

INDIA'S GEOPOLITICAL ROLE IN THIS CENTURY: CHALLENGES AND OPPORTUNITIES

Amal Chandra, Hima T. Sam
Office of Dr. Shashi Tharoor



Introduction

This article analyses the evolving Geopolitical role of India in this century, with a focus on the challenges and opportunities it faces as a potential 'superpower'. The study delves into the geographical location, historical context, ideas, and political factors that shape India's involvement in the global arena, particularly concerning its challenging influence in South Asia, International Organisations, conflicts, terrorism, economy et cetera. Moreover, it explores the opportunities available to India, on economic and technological sides, along with strategic partnerships. As a descriptive study, this article gives a perspective into the geopolitical trajectory of India and its implications in the global and regional political dynamics today.

Geographical and Historical Context

India's aspirations to become a great power are deeply rooted in its pre-colonial history and self-perception. The country's pursuit of great power status is based on the constructivist idea that recognition by other states is essential for achieving such status. India views itself as a *realpolitik* great power, using morality as a means to advance its national interests. This approach combines values and pragmatism, drawing inspiration from historical sources like the Mahabharata and the interpretation of ancient India by people like Chanakya, M.K. Gandhi, Nehru, and Tagore.

India's goal of great power status is contingent upon recognition by other states, as identities are co-constituted. Rather than solely relying on military

capability, India seeks recognition by being a member of the "great power club" as defined by Andrew Hurrell. This club is closely related to notions of legitimacy and authority, and membership depends on recognition from others. India's historical dominance as a cultural and religious leader, as well as its strategic location in the Indian Ocean, contribute to its pursuit of great power status.

India's history of colonization by the British Empire has shaped its suspicion of foreign powers and its desire for 'purna swaraj' (complete self-rule). The exploitation and subjugation experienced during colonial rule have made India skeptical of the international system and foreign influences. India aims to maintain its independence and autonomy through non-alignment and internal development. The Non-Alignment Movement (NAM), led by India, champions principles such as sovereignty, self-determination, and non-intervention. India's pursuit of modernization and development reflects its determination to regain its stature and eliminate the reputation of challenges such as poverty inherited from colonial times.

In the context of nuclear proliferation, India has adopted a two-fold approach to the nuclear arms race, building its nuclear capabilities while advocating for disarmament. This stance reflects India's pragmatism and moral values. Although India calls for increased regulation, it has chosen not to join the International Atomic Energy Agency (IAEA) or sign the nuclear non-proliferation Treaty (NPT), maintaining its non-alignment with international regimes. India's decision-making in this regard reflects its self-perception as a great power and its commitment to maintaining independence and autonomy.

India's 'Look East' and 'Act East' policies

were formulated as part of its pursuit of great power status and its desire for regional and global recognition. The 'Look East' initiative, initiated in 1994, aimed to establish closer economic, military, and diplomatic relations with South Asian countries. It was a response to the collapse of the USSR, reflecting India's need for regional alliances, and its aspiration to escape Westernization and establish an alternative to the capitalist polity. The initiative also aimed to counter the rising influence of China in the region. Over time, the 'Look East' policy evolved into Modi's 'Act East' policy, which revitalized India's engagement with East Asia and was driven by India's rivalry with China. Both policies emphasized the concept of an "Asian century" and the shared history and culture between India and Asian countries, with Buddhism playing a central role. By forming regional alliances and partnerships with smaller states, India aimed to assert its realpolitik great power status, limit the influence of other major powers, and maintain its independence and non-alignment. These policies reflect India's foreign policy goal of being recognized as a leader in Asia and ensuring its development and autonomy.

India's geographical position plays a crucial role in assuring its status as one of the superpowers in geopolitics, especially in the Asian continent. India's location in South Asia provides it with a strategic advantage by sharing borders with several key countries. For example, its border with Pakistan has led to geopolitical tensions, making India a central player in regional dynamics. Additionally, its proximity to China allows India to actively participate in the power struggle and compete for influence in the region. India's expansive coastline along the Indian Ocean grants it access to vital maritime routes and resources.

For instance, the Strait of Malacca, a critical choke point for global maritime trade, is located near India's southern coast. This gives India significant leverage in ensuring the security and stability of these crucial trade routes. India's geographical position has facilitated collaborations with major global powers. As an example, the Quadrilateral Security Dialogue (Quad), which includes the United States, Japan, Australia, and India, has emerged as a significant strategic alliance countering China's influence in the Indo-Pacific region. India's strategic geographical position, its borders with neighboring nations, control over important maritime routes, and collaborations with major powers all contribute to its assurance as a superpower in the geopolitics of the Asian continent.

The country combines pragmatism and morality in its pursuit of national interests, seeking recognition from other states while preserving its independence and autonomy.

India and Neighbors, Its Role in South Asia

The neighborhood of India comprises Afghanistan, Bangladesh, Bhutan, Myanmar, and Nepal. Through regular summits, meetings, and consultations, SAARC and BIMSTEC promote cooperation, understanding, and consensus-building among member states, including India. These diplomatic efforts help India strengthen its relationships with neighboring countries, which are essential for maintaining regional stability and influence. India, as a major regional power, actively participates in security cooperation initiatives, which helps in projecting its influence and leadership in the region. However, China, and Pakistan—to a certain extent, pose a long-term threat

to India in the region as they are intensely nuclear with an expansionist outlook.

The SAARC, established in 1985, aims to promote regional cooperation in trade, investment, transport, energy, and culture among its eight member states: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka. India has been instrumental in SAARC's functioning but faces challenges due to strained relations with Pakistan and Nepal's discontent. SAARC has struggled to make progress on key issues like SAFTA. As a result, India has shifted focus to the Bay of Bengal region and plays a leading role in BIMSTEC, founded in 1997. BIMSTEC aims to enhance economic cooperation and integration among its seven member states: Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand. India has advocated for greater connectivity, trade, and energy cooperation within BIMSTEC. However, India's influence in these organizations has drawn criticism for pursuing its interests over smaller member states' welfare. Current circumstances, including political and economic challenges in Pakistan and Sri Lanka, can impact regional stability and cooperation. India's involvement in Sri Lanka includes projects for connectivity and economic cooperation, but tensions persist due to conflicts and suspicion. India faces additional challenges in territorial disputes, terrorism, ethnic and religious conflicts, and economic disparities in the region. Despite these challenges, India's role in SAARC, BIMSTEC, ASEAN, BRICS, and ARIA reflects its commitment to regional integration and cooperation. India's leadership has driven progress in transport connectivity, energy cooperation, and trade. As India's power and influence grow, its involvement in regional organizations will remain a vital aspect of its foreign policy strategy.

India and Major Global Powers'

India, as one of the world's largest and most populous countries with big aspirations on the global power play, maintains strong relations of strategic, political, economic, and cultural dimensions with the major world powers, i.e. USA, China, Russia, Japan, European Union, UK and Australia. India-US relations made significant growth over the past decades with extensive cooperation in defence, trade, technology, counterterrorism, etc, with the USA considering India as a key strategic partner in the Indo-Pacific. The relationship has evolved into the two countries being engaged democracies. Both Nations engage in high-level dialogues and military exercises. Similarly, India has traditionally been in close ties with Russia, stemming from historical Indo defence corporations from the 'cold war' era and extension of it to areas including space, energy, and nuclear cooperation. They remained one of the leading suppliers of defence materials and stand as a strong 'all weather' diplomatic friend. However, the Indo-China relations have been complex and it is marked by both cooperation and tensions, especially border disputes in the Himalayan region along with dialogues to expand the economic corporation.

India's relations with Europe, specifically European Union (EU), are multifaceted, with inclusive involvement in trade, investment, and political corporations. The EU remains a major source of foreign direct investment (FDI) in India and remains a strong trading partner with regular summit-level meetings to deeply collaborate on global issues like climate change, sustainable development, and counterterrorism. In the European context, India shares historical ties with the United Kingdom (UK) and both countries are the members of Commonwealth. The bilateral

relations between India and UK involve trade, investment, defence cooperation, people-to-people exchanges, and so on. Both countries work towards enhancing their economic and strategic engagement. Similarly, the Indo-Japanese relationship has strengthened substantially in recent years, with strategic partnerships in areas such as defence, infrastructure building, connectivity, transfer of technology, and disaster relief. They collaborate on diverse initiatives in the Indo-Pacific region, including the Quadrilateral Security Dialogue (Quad).

India-Israel relationship over the years has evolved into a strategic and multidimensional partnership with strong ties on defence and transfer of technology. The two countries have signed a good number of agreements on water conservation, agriculture, space, science, and technology along the side of initiatives to combat terrorism and address the menace of radicalization. In short, India maintains a generally cordial relationship with potential long-term global prospects, covering America, Africa, the Middle East, Central Asia, ASEAN, South Korea, Japan, Australia, and more, which are mostly based on historical and political linkages.

Challenges

India stays in a strong, yet fluid geostrategic position, and it needs to address internal issues such as poverty, inequality, education and skill gap, unemployment, corruption, communal polarisation, and development gaps along the side leveraging its capacities to emerge as a global power. It is a gradual and multifaceted process, which shall be affected if the government is not proactively acting on the betterment of key sectors like public health, education, and security alongside the handling of the pandemic, climate, energy, global inflatio-

nary trends, and issues with China. India must reestablish itself in a strong position to limit Chinese influence and inroads in the context of the political and economic meltdown in the neighborhood.

Opportunities

India's wide array of opportunities stems from various geographical factors, such as the Himalayas acting as a natural shield, the presence of a coastline, and its position as a central figure in South Asia. Additionally, its potential for economic growth is fueled by strategic reforms, increased investment, and global capital formation. The country's advancements in science and technology, including naval capabilities, coupled with its demographic dividend and abundance of young talent, contribute to its potential. Furthermore, India's infrastructure and industries, particularly in sectors like iron and steel, energy, commerce, and tourism, play a significant role. The country's soft power, which includes its rich cultural heritage, democratic values, practices like Yoga and Ayurveda, the global diaspora, language skills, participation in international organizations, and strengthened diplomatic relations, further enhance its opportunities. India's climate leadership, regional influence, multipolarity, and military advancements also contribute to its potential for growth towards being a 'super power'.

Conclusion

The geo-polity of this era is rapidly changing and it demands constructive and multidimensional interactions with all countries. This is a critical time for India in many ways, concerning the tensions in its neighborhood and global developments, and the country needs to build on the opportunities. For instance, with a step ah-

ead to free and open Indo-Pacific, stressing maritime and cyber security, being more vocal on its positions along with the shift to 'muti-alignment' from 'non-alignment', the policy of de-hyphenation on issues like Palestine. Many countries aspire for a better relationship with India as a hedge against China and the overbearing presence of the USA. Addressing the issues through an effective, balanced, sustained, and comprehensive approach from the side of the State, civil society, and private sector is quintessential for India to become a big power in the current geopolitical dynamics. The G20 leadership and many of the recent agreements India made with countries on trade and other areas have opened new chances.

Bibliography

*Bajpae, Cheirigj (2016) 'Modi, India, and the emerging global economic order'.
Journal of Asian Public Policy*

*Hurrell, Andrew (2006) 'Hegemony, liberalism, and global order: what space for would-be
great powers? International Affairs*

*Jaffrelot, Christophe (2003) 'India's look east policy: an Asianist strategy in perspective.'
India Review*

*Jaishankar, S. (2022). The India way: Strategies for an uncertain world.
HarperCollins Publishers.*

Nehru, J. (1946). The Discovery of India: (by) Jawaharlal Nehru. John Day Co.

Ogden, Chris (2014) Indian Foreign Policy: Ambition and Transition. Cambridge: Polity.

*Sauer, Tom (2006) 'The Nuclear Nonproliferation Regime in Crisis.' Peace Review:
A Journal of Social Justice*

*Tharoor, S. (2013). Pax Indica: India and the world of the 21st Century.
Penguin Random House India.*

UNDERSTANDING JAPAN'S DRIFT IN DEFENSE OUTLOOK

Umang Bhansali

Vivekananda International Foundation (VIF)



“Ukraine today, maybe East Asia of tomorrow.”

- PM Fumio Kishida

Introduction

Japan, an archipelago of 14,125 islands, was once known to have forged one of the most fierce combat and strategic armies during the course of World War II and even before, in the reign of its imperial government. Since the ravages of World War II, Japan has kept itself far from any kind of military confrontation and, thereby, has repositioned itself as a pacifist state. Any ambition for Japan to boast its military prowess was tranquilized due to the self-imposed restrictions and under the influence of the Supreme Command of Allied Powers (SCAP) constraints. Japan, in tandem with the constitutional positioning of sticking to a ‘defense-only defense’ policy or “Senshu Boei” via; Renunciation

of War and restricting itself to maintain a military force through Article 9[1]; further restricting its defense spending to near about of 1 percent of its GDP since 1958[2]; or adhering to the strict three principles of arms export; have tied down the defense capability of Japan. The protection received by the Japanese under the 1960 Treaty of Mutual Cooperation and Security with the United States further dents Japan’s need to remilitarize.

With all that in the backdrop, the current geo-strategic drift has made Japan to reconsider its defense position within its neighborhood and in Indo-Pacific. The numerous instances of Chinese incursion, deploying its expansionist policies in the South China Sea, North Korea going rouge

with its nuclear missile tests, and the ongoing Russia-Ukraine war have dramatically reoriented the strategic outlook of Japan.

Japan is steadily going through a metamorphosis from its pacifist defense-only strategy to a proactive yet defense-oriented strategy. The Japanese Diet reinterpreted Article 9 in 2015, allowing it to engage in collective self-defense for the first time and further give a constitutional status to its Security Defense Forces (SDF), paving the way for future prolific drift in its defensive position. In December 2022, PM Fumio Kishida released three revised National Security documents; The National Security Strategy (NSS), National Defense Strategy & Defense Build-up Program. In April 2023, Japan also established a new cooperation framework, 'Official Security Assistance' (OSA), which offered to assist and deepen ties with like-minded countries. The most notable policy changes include;

- i) the doubling of the defense budget to 2% of GDP by 2027, making Japan the third-largest defense budget in the world, and
- ii) the decision to organize counterstrike capability, through which Japan can fire upon and disable enemy missiles before they are launched from foreign territory

China, an Existential Threat?

Japan is inevitably skating on thin ice in dealing with China. On the one hand, Japan faces multidimensional challenges in the form of security, economy, and defense, whereas on the other is still looking to harness its bilateral relations by promoting close economic and people-people relations. August 2023 will realize the 45th anniversary of the Treaty of Peace and Friendship between the two nations, with the current developments in Sino-Japanese

relations experiencing a positive push through visits and security dialogues. In February 2023, the Japan-China Foreign Ministers' 50 minutes of telephone talk signified the relevance of the green economy and people-people exchange. Later, In the 17th Japan-China Security Dialogue, both nations agreed to continue to strengthen and sustain communications on security and defense matters utilizing various frameworks for dialogues between the two countries on multiple levels[1]. Furthermore, both nations concurred to resume the trilateral Japan-China-Republic of Korea (ROK) processes[2], during the April visit of the Japanese Foreign Minister to China.

All this progress comes into question, considering China taking custody of a Japanese citizen who was suspected of engaging in espionage activities. Having extended support of more than 3 trillion yen (1979-2022), in the belief that China's development as a responsible member of the international community would benefit the stability and wider development of the Asia-Pacific region[1]. The economic relations are tilted in Chinese favor, with a trade deficit of \$3.20 billion faced by Japan[2]. In 2022, China was Japan's largest trading partner, accounting for one-fifth (20%) All this progress comes into question, considering China taking custody of a Japanese citizen who was suspected of engaging in espionage activities. Having extended support of more than 3 trillion yen (1979-2022), in the belief that China's development as a responsible member of the international community would benefit the stability and wider development of the Asia-Pacific region[1]. The economic relations are tilted in Chinese favor, with a trade deficit of \$3.20 billion faced by Japan[2]. In 2022, China was Japan's largest trading partner, accounting for one-fifth (20%) of its exports and one-fourth (25%) of its imports. Japan has urged China to "ens-

ure a transparent, predictable, and fair business environment and guarantee the safety and legitimate economic activities[1],” and to lift import restrictions on Japanese food products, but little is at the resort.

Finally, the monolith cause for the unevenness in Sino-Japanese relations is the Senkaku dispute and Taiwan. Despite Japan’s low-profile stance towards the one-China policy. Japan has raised concerns over China’s military advances. This primarily comes after China launched nine ballistic missiles on August 4, 2022, a day later to US State Representative Nanci Pelosi’s visit to Taiwan. Five of those missiles landed within Japan’s Exclusive Economic Zone (EEZ), which was perceived as a threat to the waters southwest of Hateruma Island in Okinawa Prefecture[2]. Senkaku Islands hold immense economic and strategic relevance to Japan through resources, maritime navigation, and significant sea links. Also, because of Japan’s complete dependence on imports of oil and minerals, any uncertainty in the EEZ will invariably hamper Japan’s trade and is met with hostility.

Japan continues to promote “the Mutually Beneficial Strategic Relationship with China and take a balanced stance by looking ‘to build constructive and stable relations with China,’ as mentioned in the leaders’ communiqué of the G-7.

Calling on International Support

The actions of the Chinese Eastern Theater Command in the Senkaku Dispute and Taiwan’s uncertainty highlight nothing but China’s expansionist ideology. Japan has showcased at various multilateral levels that such developments are a threat not only to the Indo-Pacific and Japan but also to the entire international community. Having the presidency for the 49th G-7 Summit, consi-

sting of seven of the world’s most advanced economies and participation from leaders of 8 different countries, PM Kishida utilized the platform to raise severe concerns about Free and Open Indo-Pacific (FIOP).

“Any unilateral attempt to change the status quo by force is unacceptable anywhere in the world and shall be opposed[1],” was the anchor used by PM Kishida during the 2023 G-7 Summit, calling on other nations to collaborate with Japan to maintain regional and thereby, international peace.

The strategic uncertainty in Japan’s neighborhood, collated with the Russian invasion, has somewhat forced Japan to believe that the country must beef up its defense capabilities or become vulnerable and succumb to the foremost military power at its doorstep, like Ukraine. Since the Russia-Ukraine war, Japan has extended US\$ 7.1 billion in financial support and much more towards humanitarian aid to Ukraine, although they have not yet extended any military support. It would be a no-brainer to presume that Japan does expect a collaboration of similar stature.

NATO is planning to open its first liaison office in Japan and to use it as a hub for cooperation with Australia, Japan, New Zealand, and South Korea[1], the first of its kind in Asia. Japan’s efforts to further upgrade its regional cooperation by signing the Individually Tailored Partnership Programme (ITPP). It is evident that Japan seeks to fortify itself from the presumable Chinese incursion through the multilateral fora. Japan is part of QUAD and seeks to be a part of AUKUS, making it JAUKUS. QUAD and AUKUS are 2 of the three major military alliances in the Indo-Pacific region, the other being the Five Eyes alliance. Despite this, it cannot be ignored that Japan looks to tackle the Chinese situation

tactfully rather coercively. Chinese military prowess can over-power Japan's current military capabilities, hence as of now, Japan will have to depend upon multilateral relations while playing catch up in military build-up. Japan's current strategy highlights that they are sailing on two boats regarding China's challenge, which will not be fruitful in the long run.

A move closer to the West?

Japan realizes the reality of the increasingly severe security environment in their close proximity, along with a need to drift away from the dependence on the Basic Defense Force Concept and emphasize the deterrence effect. Their focus on increasing defense capabilities, participation in multilateral or bilateral military exercises, active exchanges of Intelligence, Surveillance, and Reconnaissance (ISR), etc., proves the same. But the question exists, does Japan have enough steam to develop and become at par with the military sophistication in the neighborhood? Also, which route will they pick while playing catch-up, i.e., dependence on the West via multilateralism or becoming truly self-sufficient?

In the past years, geo-political developments and uncertainties have stirred the debate on the accessibility of multilateralism. Considering Japan's geographical location, being one of the influential countries close to China, all the hopes for defense and security shall not be pinned on the multilateral corporations. All the new or amended defense policies are immense and proliferous by Japanese standards. But it is a fact that the job catching up in the defense sector will be strenuous and time taking, indeed these are the profound and long-lasting effects of Japan's low defense spending. In its diplomatic strategy, Japan should balance its priority in its own military exercises with that of participation in bipolar and m-

ultipolar military exercises. However, all these will contribute to uplifting defense capabilities, technologies, and know-how. But Japan's approach will define whether it chooses to be responsible for its own defense, will they still pivot towards the American influence, or will they take a mixed stance. This decision is not merely related to defense strategy but also an ideological one. Considering the Japanese post-World War II past, the pacifist stance seemed to have an everlasting impact. Only the uncertainty in the last decade has led to the change in the Japanese defense position. But, the policy change will only start to have an effect after a particular time, and the geopolitical situation does not always present you with time to do so; take the Russian invasion, for instance. Hence, Japan's faith lies in its own hand if it has to prevent or even delay the East becoming a new Ukraine.

Bibliography

Constitution of Japan.

https://japan.kantei.go.jp/constitution_and_government_of_japan/constitution_e.html

[1] Wright, John. July 12, 2022. Japan's Self-Imposed One Percent: Does It Really Matter? *Journal of Indo-Pacific Affairs* (JIPA). Air University Press. <https://www.airuniversity.af.edu/JIPA/Display/Article/3089775/japans-self-imposed-one-percent-does-it-really-matter/>

[1] <https://isdpeu/content/uploads/2018/04/Amending-Japan%E2%80%99s-Pacifist-Constitution-2.pdf>

[1] *Kyodo News*. December 2, 2022. Japan ruling bloc agrees on acquiring "counterstrike capability". <https://english.kyodonews.net/news/2022/12/3054d5b15ef4-japan-ruling-bloc-to-agree-on-acquiring-counterstrike-capability.html?phrase=takeda&words=>

[1] *Ministry of Foreign Affairs, Japan*. February 22, 2023. *The 17th Japan-China Security Dialogue (Overview)*. https://www.mofa.go.jp/press/release/press1e_000381.html

[1] *Ministry of Foreign Affairs*. April 2, 2023. *Extraordinary Press Conference by Foreign Minister HAYASHI Yoshimasa*. https://www.mofa.go.jp/press/kaiken/kaiken24e_000210.html

[1] *Ministry of Foreign Affairs, Japan*. July 6, 2022. *History of Official Development Assistance (ODA) to China*. https://www.mofa.go.jp/policy/oda/region/e_asia/china/index.html

[1] *Kajimoto, Tetsushi*. May 18, 2023. Japan's export Growth Hit 2-year on weak China Demand. *Reuters*. <https://www.reuters.com/markets/asia/japans-export-growth-hits-two-year-low-weak-china-demand-2023-05-18/#:~:text=The%20trade%20balance%20came%20to,a%20613.8%20billion%20yen%20shortfall.>

[1] *ibid.*

[1] *The Japan Times*. August 4, 2022. Japan says five Chinese ballistic missiles landed inside EEZ near Okinawa. *National Section*. <https://www.japantimes.co.jp/news/2022/08/04/national/japan-china-missiles-eez/>

[1] *Speech by Prime Minister KISHIDA Fumio at the "Future of Asia" Forum* https://japan.kantei.go.jp/101_kishida/statement/202305/25speech.html

[1] *Moriyasu, K., Miki, R. & Tsuji, T.* May 3, 2023. NATO to open Japan office, deepening Indo-Pacific engagement. <https://asia.nikkei.com/Politics/International-relations/Indo-Pacific/NATO-to-open-Japan-office-deepening-Indo-Pacific-engagement>

Bibliography

[1] Kavanagh, Jennifer. February 8, 2023. *Japan's New Defense Budget Is Still Not Enough*. Carnegie Endowment for International Peace. Commentary.

<https://carnegieendowment.org/2023/02/08/japan-s-new-defense-budget-is-still-not-enough-pub-88981#:~:text=Japan's%20new%20commitments%20are%20undoubtedly,defense%20budget%20in%20the%20world.>

DOLLAR RUPEE EQUALISATION

Tanvi Maharana and Srishti Singh

Kamala Nehru College, University of Delhi



Abstract

The paper analyses the implications of a hypothetical situation of the rupee hitting parity with the USD i.e., 1 USD= 1 Rupee, and draws meaningful conclusions accrued to a stronger rupee. Under the scenario of rupee-dollar parity, the commodities & services which were being imported to or exported from India will now have to be priced with suitable rate realignment for the continuance of the trade. The export or import of goods shall factor in all the components used in a commodity, which are responsible for the fixation of the price of the goods at both ends so that the buyer and the seller do not lose out because of an under-quotation or price escalation. Our study employs the Exchange rate pass-through (ERPT) which can be defined as the percentage change in the local currency import prices following a percentage change in the exchange rate between importing and exporting countries. We also use the reverse J curve effect to derive useful conclusions. It finds the forex and

capital markets' psychology and unveils the behavioural economics of investors' decisions in these volatile circumstances.

JEL Classification Codes: B27, C12, E31, F21, F31

Keywords: 1 USD= 1 Rupee, Exchange rate pass-through, J Curve Effect, Rate realignment, Forex and Capital markets' psychology

Introduction

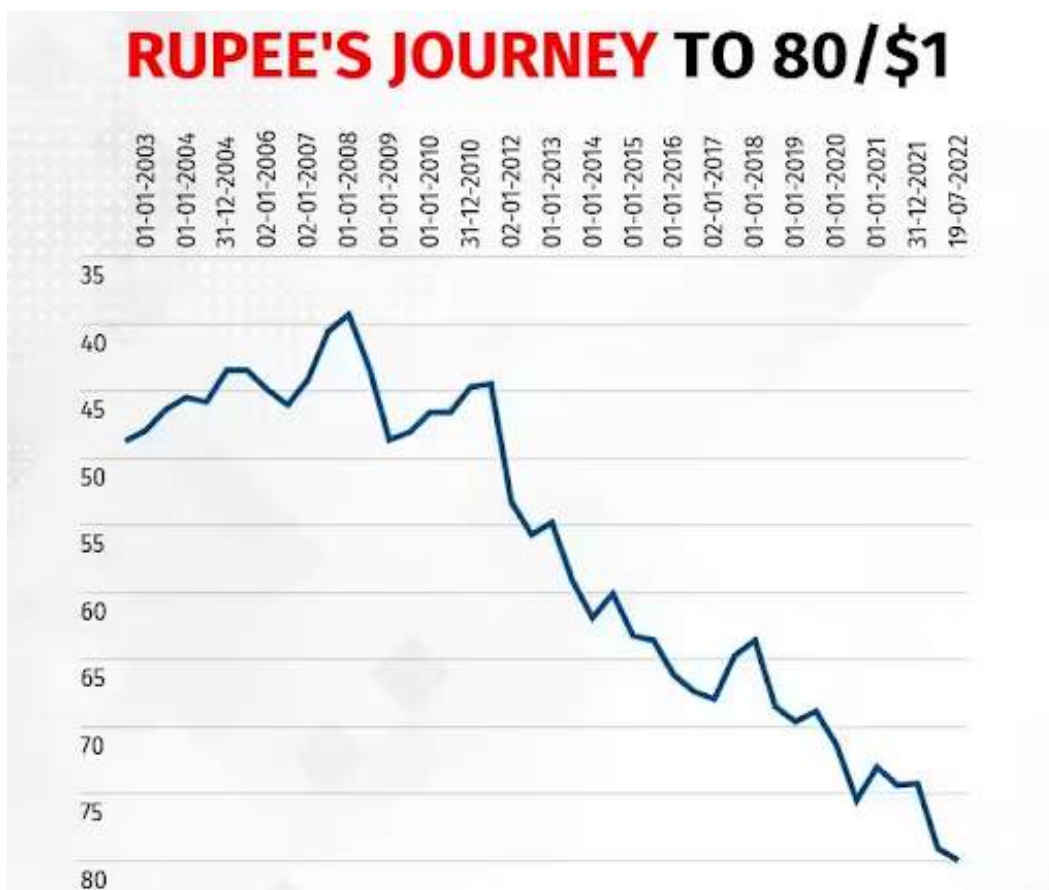
In a globalised world with continuously growing capital mobility and falling trade barriers, the interconnectedness and interdependence of economies amplifies the impact of exchange rate fluctuations on the domestic economy and the common man. Recently, the Indian currency breached the psychological mark of 80 against the US Dollar. The adverse effects of currency depreciation on foreign reserves and current account deficit

warrants intervention from the central bank and the government, as they attempt to stabilise the economy. Sectors that will be positively affected from a rupee depreciation include Pharmaceuticals, IT, Steel, Garments and Tea. However, it will adversely impact oil and gas, renewable energy, automobiles, FMCG, consumer electronics, cement, telecom services and aviation. India is predominantly a price-taker in global markets for indigenously produced goods and services that are exported. More often than not, currency depreciation of the rupee results in the phenomenon of "twin deficits", worsening both the current account deficit and fiscal deficit.

Taking inspiration from such an extreme case of exchange rate fluctuation, we decided to analyse the implications of this events' counter opposite i.e. dollar rupee parity via our research paper.

As we know, with the various measures being introduced by the Government of India, be it the Make in India concept or the performance linked incentives concept and with the major global manufacturing activities being shifted from China to India, India is consistently moving ahead towards becoming a developed nation in the coming years. Rupee's demand is already on a rise because of the booming commerce and investment in India's economy. The vast potential of the nation's sizable and ever-growing market is making it a more alluring location for foreign investment, with global corporations lining up to open facilities in the country.

As a part of the International Settlement of Trade, Russia and India completed their first trade settlement in rupees in December last year. Countries including Bangladesh, Mauritius, Sri Lanka etc. are already considering bilateral trade settle-



ents in Indian rupees. Gulf nations like UAE and Saudi Arabia may also soon start payment mechanisms in rupee. So this clearly indicates that the demand for rupee is on the rise in the global markets.

Literature Review

Exchange rate pass through (ERPT) is the responsiveness of trade prices to a change in exchange rate. More technically, it can be defined as the percentage change in the local currency import prices following a percentage change in the exchange rate between importing and exporting countries. ERPT is a form of elasticity; it is the elasticity of trade prices with respect to exchange rate. Its extent could be complete, incomplete or zero. A complete ERPT corresponds to prices changing almost proportionally to exchange rate changes. Incomplete ERPT is characterised by prices changing less than proportionally to changes in exchange rate. When prices are non-responsive to changes in the exchange rate, ERPT is said to be 0. Earlier academic work on the subject found, in general, evidence of incomplete exchange rate pass-through. For instance, Feenstra (1987) finds that the pass-through coefficient for US import prices of Japanese exports varies across products in the range from about 0.6 to unity. OECD import prices in local currencies, on the average, reflect 60 percent of exchange rate fluctuations in the short run, and nearly 80 percent over the long run {Campa and Goldberg (2002)}. Several recent papers have shown that since the 1990s, the degree of passthrough has declined substantially. For instance, Marazzi et al. (2005) have found the exchange rate pass-through into US import prices have steadily declined during the 1990s. In the existing literature incomplete pass-through is generally explained by the existence of trade barriers, transaction and transportation costs, market power and imperfect substitutability between foreign products and domestic substitutes. But the

main reasons for an incomplete pass through are changes in marginal costs and mark-ups that follow a change in exchange rate.

$$\frac{dp}{d\epsilon} = 1 + \frac{d\mu}{d\epsilon} + \frac{d(mc)}{d\epsilon}$$

ERPT would be equal to 1 if the last two terms are equal to zero.

Derivation of equation:

Profit maximising first order condition for exporting firms setting (dollar) price in the US:

$$P = \frac{\epsilon}{\epsilon-1} (MC * E)$$

$$\text{With Elasticity of Demand } \epsilon = \frac{\frac{dQ}{Q}}{\frac{dP}{P}}$$

Taking log both sides, we have

$$\ln P = \ln \left(\frac{\epsilon}{\epsilon-1} * MC * E \right)$$

Or

$$\ln P = \ln \frac{\epsilon}{\epsilon-1} + \ln (MC) + \ln(E)$$

Using total differential, we have

$$\partial \ln P = \partial \ln \frac{\epsilon}{\epsilon-1} + \partial \ln MC + \partial \ln E$$

$$\text{Let } p = \ln P, mc = \ln MC, e = \ln E, \mu = \ln \frac{\epsilon}{\epsilon-1}$$

Then

$$\partial p = \partial \mu + \partial mc + \partial e$$

Or

$$\frac{\partial p}{\partial \epsilon} = 1 + \frac{\partial \mu}{\partial \epsilon} + \frac{\partial mc}{\partial \epsilon}$$

- Mark- up (dμ/de)

Profit maximising first order condition for exporting firms setting (dollar) price in the US:

$$P = \frac{\epsilon}{\epsilon-1} (MC * E)$$

Mark-up is the difference between the selling price of a good/ service/ cost. It is often expressed as a percentage over the cost. Here, mark-up is given by $\epsilon/\epsilon-1$.

As we've seen, when the domestic currency appreciates, domestic goods lose competitiveness because of the increase in relative prices of domestic goods with respect to foreign goods. This would lead to a fall in demand (and thus market share) of domestic goods. Firms would want to avoid this, and they would do so by lowering the mark-up. This change in mark-up due to change in exchange rate is less than zero.

$$\frac{d\mu}{d\epsilon} < 0$$

One exception to this is the CES production function which does not generate variable mark-ups.

CES Production Function:

$$C = \left(\int_v C_v^{\frac{\sigma-1}{\sigma}} dv \right)^{\frac{\sigma}{\sigma-1}}$$

This implies that $\epsilon = \sigma$, $\Delta\mu = 0$

- Marginal costs

Marginal cost can also vary with exchange rate. Following are some production assumptions that generate variable marginal costs:

- Non-Constant returns to scale: If the production function exhibits non constant returns to scale, marginal cost at different levels of production is different, such that $d(MC)/dQ \neq 0$. Therefore, if the exchange rate changes, the price changes, which means that the optimum quantity also changes, and this new quantity is associated with a different marginal cost.
- Cheaper Imports: If the exporting firm imports some of the intermediate goods from abroad, an appreciation of the domestic currency would make these imports less expensive, which translates into a lower marginal cost. In this example if we have a Cobb-Douglas function that relates marginal cost to domestic and foreign wages, then

$$MC = W^\beta (W^*)^{\beta-1}$$

Where W is the foreign wage expressed in local currency i.e.,

$$W' = \frac{W^*}{\epsilon}$$

This implies that $\frac{\partial \ln MC}{\partial \ln \epsilon} = \beta - 1 < 0$

If we put both the results in the equation

$$\frac{dp}{d\epsilon} = 1 + \frac{d\mu}{d\epsilon} + \frac{d(mc)}{d\epsilon}$$

The last two terms in the equation are less than zero, which implies that

$$\frac{dp}{d\epsilon} < 1$$

which implies

$$\frac{d \ln P}{d \ln \epsilon} < 1 \quad \text{Or,}$$

$$ERPT < 1$$

2.2 Under a certain set of assumptions, the "J curve" is described as the time path of a country's trade balance following a depreciation or devaluation of its currency, in economics. A devalued currency implies expensive imports. On the assumption that the volumes of imports and exports change little at first, this results in a fall in the current account (a bigger deficit or smaller surplus). After some time, however, the volume of exports starts to rise because of their lower price to foreign buyers, and domestic consumers buy fewer imports, which have become more expensive for them. Ultimately, the trade balance moves to a larger surplus or a smaller deficit collating with what it was before the devaluation.

A key aspect of the J-curve phenomenon is that prices of traded goods respond to a change in exchange rates before quantities of those goods tailor significantly to changes in relative prices.

For any one country, the export volume depends on foreign income and relative prices, while the import volume depends

on domestic income and relative prices. The nominal trade balance is the value of exports less the value of imports. In algebraic terms,

$$TB = p_x \cdot X - p_m \cdot M$$

In this expression,

TB= trade balance in current dollars

X= volume of exports

p_x = price of exports

M= quantity of imports

p_m = price of imports

Exchange rate fluctuations affect the nominal trade balance through four channels: directly through export and import prices, and laterally through the response of export and import volumes to an alteration in relative prices. The commerce of these direct and indirect effects leads to J-curve creation in the nominal trade balance. The more swiftly import prices respond to the change in exchange rates and the more leisurely import and export volumes acclimate, the larger will be the initial worsening of the nominal trade balance and the longer will be the interlude before a net enhancement.

Likewise, if there is a currency revaluation or appreciation the same argumentation may be applied and will lead to an inverted J curve or what is better known as the Reverse J- Curve effect.

2.3 According to the study of Franck and Young (1972), there is no significant interplay between the securities market and exchange rate. An association was examined between the stock prices and financial sector of currency exchange in India, but no significant integration was set up {Bhattacharya and Mukherjee (2003)}.

The developed countries have experienced less exposure to exchange rate movements as compared to

developing or emerging countries.

A bidirectional relationship exists between the two variables. Abdalla and Murinde (1997) investigated the relationship between the two variables for the period 1985-1994 in four Asian countries by using cointegration approach in the long run. The conclusion they came up with was that causality exists in India and Philippines and denied its presence in Pakistan and Korea. Ajayi et al. (1998) found no consistent relationship in developing economies from stock market to foreign exchange market and a unidirectional relationship in developed economies.

By using the data for the period 1988-98, Pan et al. (2001) examined that there is a significant correlation between exchange rates and stock markets of seven Asian countries.

2.4 Foreign capital plays a significant role in the development of the economy. It helps in monetary expansion and accumulation with effective production and construction, especially in developing economies like India where there is a wide gap between investment and saving. FIIs are also contributing a significant extent toward domestic saving, reduced cost of capital, sustainable and continuous growth of GDP.

Granger's Causality Test is used to check the direction of causal relationships. The paper: The relationship between exchange rate and FIIs in India, published by Pratibha Maurya helped in adjudicating whether exchange rate causes stock market or stock market causes exchange rate. The pre-condition which should be satisfied is that the data should be stationary and should be converted to stationary data if it is not.

Null Hypotheses:

H01: Exchange rate does not granger causes Foreign Institutional Investment.

H02: Foreign Institutional Investment does not granger cause Exchange Rate.

Alternate Hypotheses:

Ha1: Exchange rate granger causes Foreign Institutional Investment.

Ha2: Foreign Institutional Investment granger causes Exchange Rate.

export prices. Higher ERPT would imply that prices are more responsive to changes in the exchange rate, which translates into an even lower trade competitiveness of domestic goods.

If the rupee appreciates from being equal to one eightieth of a dollar to being equal to one dollar, given the export prices, Indian goods (expressed in \$) would now be 7900% more expensive. This corresponds to a complete pass through (ERPT=1).

Null Hypothesis	Lag Length	F-Statistics	P-Value	Decision
Exchange Rate does not Granger causes FII's	2	6.1981	0.0021	Reject H ₀₁
FII does not Granger causes Exchange rate	2	3.411	0.0333	Reject H ₀₂

As per the standard Granger-causality test, the first null hypothesis is rejected. Second null hypothesis also succeeded in rejecting the null hypothesis that FII does not granger causes Exchange Rate where in both the cases P-Value is less than five percent i.e. 0.0021 and 0.333 respectively.

As per the results of Granger causality test, there is a bi-directional relationship among FIIs and exchange rate. With a flexible exchange regime existing in India, fluctuations in exchange rate are bound to have an impact on the fluctuation of FIIs in India. Turning toward the direction of causality from FII to exchange rate, results depict that FIIs are manipulating exchange rate through FIIs gross purchase and gross sales resulting in fluctuation in domestic currency.

3. Methodology and Disposition:

3.1 ERPT

Currency appreciation makes domestic goods less competitive due to a rise in their

On the other hand, currency appreciation makes the foreign goods more competitive due to a fall in import prices. If the dollar depreciates from being equal to eighty rupees to being equal to one rupee, given the import prices, the goods India imports from the US would now be 98.75% less expensive, in case of a complete pass through.

In reality, the value of ERPT is less than 1, that is, the percentage change in trade prices is usually less than the percentage change in exchange rate. This is due to other factors that affect prices, like marginal costs and mark-ups, being endogenous to changes in exchange rates.

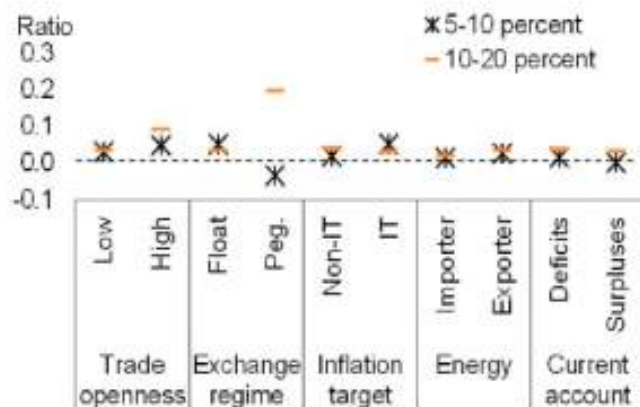
$$\frac{dp}{de} = 1 + \frac{d\mu}{de} + \frac{d(mc)}{de}$$

where,

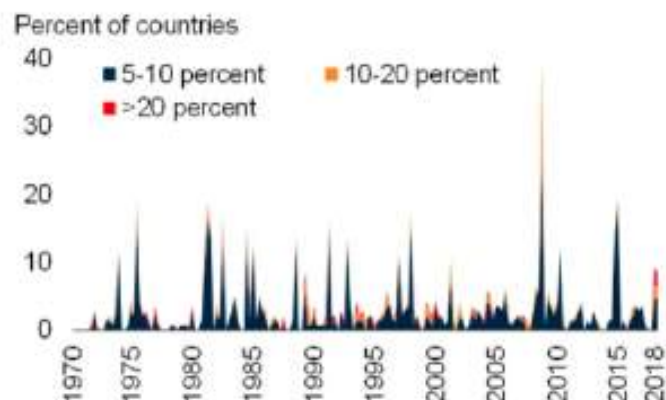
- p= log of trade prices
- e= log of exchange rate
- μ = mark-up
- mc= log of marginal costs

Empirically, in the relatively rare cases of significant currency appreciations, the observed median value of exchange rate pass through has been low.

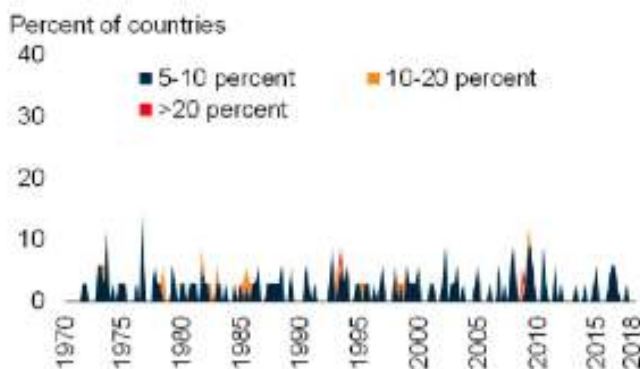
EMDEs: Unconditional pass-through from different appreciation episodes, 1998-2017



Frequency of significant exchange rate appreciations: EMDEs



Frequency of significant exchange rate appreciations: Advanced economies



Unconditional pass-through from different appreciation episodes, 1998-2017

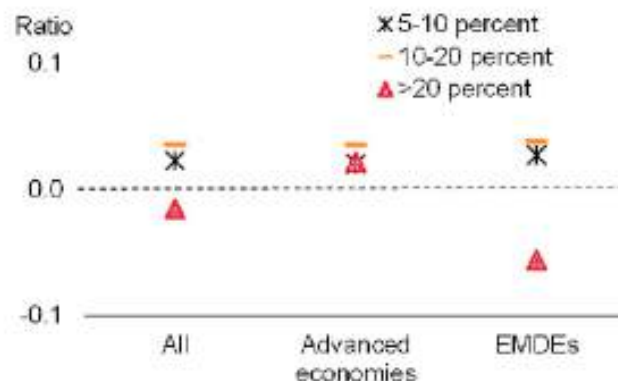


Fig C. Pass through during significant currency appreciations

Source: World Bank

Note: The sample comprises 34 advanced economies and 138 EMDES.

EMDES = emerging market and developing economies; GDP = gross domestic product; IMF = International Monetary Fund; IT inflation targeting

Different values of ERPT correspond to different magnitudes of increases in export prices (or decreases in import prices). The effect of this drastic appreciation on demand would therefore vary with different values of ERPT. However, there is one definite conclusion- there would be a massive fall in exports and rise in imports (though not of the same magnitude as the fall in exports). The overall trade balance would significantly worsen.

Following tables give the percentage change in trade prices for different values of ERPT, if dollar depreciates from Rs.1=\$1/80 to Rs.1=\$1 (by 7900%) or if rupee appreciates from \$1=Rs.80 to \$1=Rs.1 (by 98.75%). The tables have been derived using the formula:

ERPT= %age change in local currency import prices/ %age change in exchange rate

A \$100 good has been considered in the calculation of these tables. However, the results we obtained hold for all prices. We can conclude that dollar rupee equalisation can lead to a percentage increase in export prices of 0%-7900%, and a percentage

ERPT	Relative change in import prices	P0 in \$	P0 in Rs.	Change	P1 in \$	P1 in Rs.	% change in import prices
0	0	100	8000	0	100	100	0
0.01	0.79	100	8000	79	179	179	79.00%
0.1	7.9	100	8000	790	890	890	790.00%
0.2	15.8	100	8000	1580	1680	1680	1580.00%
0.25	19.75	100	8000	1975	2075	2075	1975.00%
0.3	23.7	100	8000	2370	2470	2470	2370.00%
0.4	31.6	100	8000	3160	3260	3260	3160.00%
0.5	39.5	100	8000	3950	4050	4050	3950.00%
0.6	47.4	100	8000	4740	4840	4840	4740.00%
0.7	55.3	100	8000	5530	5630	5630	5530.00%
0.75	59.25	100	8000	5925	6025	6025	5925.00%
0.8	63.2	100	8000	6320	6420	6420	6320.00%
0.9	71.1	100	8000	7110	7210	7210	7110.00%
0.99	78.21	100	8000	7821	7921	7921	7821.00%
1	79	100	8000	7900	8000	8000	7900.00%

Fig D. EXPORTS

ERPT	Relative change in import prices	P0 in \$	P0 in Rs.	change	P1 in \$	P1 in Rs.	% change in import prices
0	0	100	8000	0	8000	8000	0.00%
0.01	-0.009875	100	8000	-79	7921	7921	-0.99%
0.1	-0.09875	100	8000	-790	7210	7210	-9.88%
0.2	-0.1975	100	8000	-1580	6420	6420	-19.75%
0.25	-0.246875	100	8000	-1975	6025	6025	-24.69%
0.3	-0.29625	100	8000	-2370	5630	5630	-29.63%
0.4	-0.395	100	8000	-3160	4840	4840	-39.50%
0.5	-0.49375	100	8000	-3950	4050	4050	-49.38%
0.6	-0.5925	100	8000	-4740	3260	3260	-59.25%
0.7	-0.69125	100	8000	-5530	2470	2470	-69.13%
0.75	-0.740625	100	8000	-5925	2075	2075	-74.06%
0.8	-0.79	100	8000	-6320	1680	1680	-79.00%
0.9	-0.88875	100	8000	-7110	890	890	-88.88%
0.99	-0.977625	100	8000	-7821	179	179	-97.76%
1	-0.9875	100	8000	-7900	100	100	-98.75%

Fig E. IMPORTS

A \$100 good has been considered in the calculation of these tables. However, the results we obtained hold for all prices. We can conclude that dollar rupee equalisation can lead to a percentage increase in export prices of 0%-7900%, and a percentage decrease in import prices of 0%-98.75%. Such drastic increase in export prices would clearly affect demand for domestic goods severely.

3.2 Reverse J curve effect

Trade balance

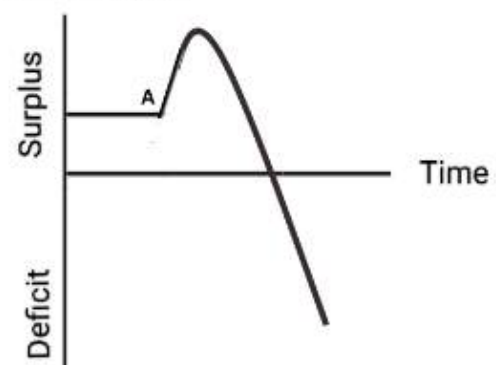


Fig F. SPICED Phenomenon

The Reverse J curve effect basically states that an appreciation of the currency leads to an initial increase in the trade balance before deteriorating. It has much the same sort of implications but in this case, we are moving from a position from trade surplus to an improvement and then a consequent worsening of the trade balance of the home country (India).

At point A, an appreciation of currency is carried out. So, with an appreciation, the value of domestic currency improves and what plays through is the phenomenon known as SPICED i.e., STRONGER POUND= IMPORTS CHEAPER + EXPORTS DEARER. As our study involves drastic expansion of the exchange rate i.e., from 80 Rupees= \$1 to 1 Rupee= \$1 and India experiencing a trade deficit during the time of when \$1= Rs. 80 our curve would look like the following:

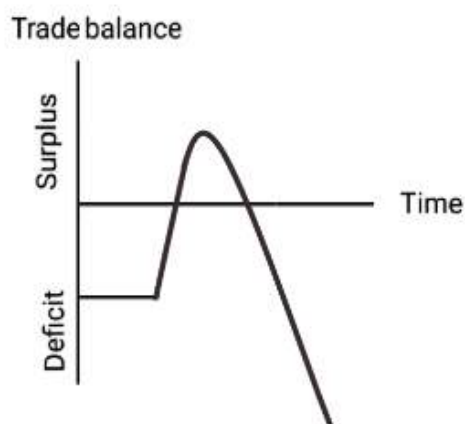


Fig G. Reverse J Curve Effect in case of Rs. 1= \$1

Bringing into play the concept of the J Curve, one can notice exports abruptly becoming more expensive for importing countries during when the currency of a country appreciates. If other countries can fill the demand for a lower price, the stronger currency will reduce its export competitiveness. As imports have become more competitive with locally produced goods, local consumers may switch to imports, too. Immediately following the appreciation or revaluation of the currency

the total value of imports will fall, and exports remain largely unchanged due in part to pre-existing trade contracts that must be honoured. This is because in the short run, prices of imports fall due to the appreciation and in the short run there is a lag in changing consumption of imports. Thereby, until the long run prevails, and consumers terminate importing as numerous cheap goods which along with the decline in exports beget the current account to drop there's an immediate dip followed by a pause.

In addition, demand for cheaper imports in the short run (and demand for exports which are dear to foreign buyers in terms of foreign currencies) remain price inelastic. The reason behind the same can be attributed to time lags in consumer's search for economical, sustainable and admissible alternatives (which might not even exist).

4. Results:

4.1 Stock markets psychology:

Exchange rate fluctuations play a crucial role in determining the market value of firms and stock prices. The latter can get significantly affected by it.

So far, no consensus has been drawn on the interrelation between stock markets and exchange rate. Financial theory suggests that the value of a firm must get influenced by interest rates and exchange rates. Exchange rate fluctuations may determine the stock prices of firms.

An increase in prices of assets encourages investment in the domestic market which in turn leads to an increase in the demand for local currency and a rise in sales foreign assets. The increase in demand of local currency will force the interest rates to rise in sales which will ultimately attract the foreign investors to invest.

The currency would appreciate, i.e., the price of foreign currency in terms of the local currency would go down. This shows a negative relationship between prices of assets and the exchange rate in terms of local currency i.e., the prices of foreign currency as also suggested by the Portfolio Balance approach. As per the Traditional Balance Approach, stock markets and exchange rates demonstrate a positive relationship, and the causality runs from exchange rates to stock markets. When local currency appreciates, local firms become less competitive which leads to a fall in their exports. This will result in an ultimate fall in stock prices. In addition to the above two approaches, there exists another approach i.e., Asset Market approach which proposes that there is no interaction or very weak association between the exchange rate and stock market. This is due to the reason that both the variables may be driven by different factors.

4.2 Foreign inflows

Less than 10% of capital is invested by ordinary investors in India's capital market, therefore FII inflows will have a big impact on the upward trend in stock prices. FIIs and exchange rates display a bidirectional relationship. A positive correlation travels between FII and stock market returns in the equity market. When the rupee continues to appreciate over the long term, it will make Indian assets and stocks less appealing because fewer of them can be bought with the same amount of money as before.

However, this situation will only be relevant if the rupee strengthens due to supply and demand, or if the government steadily increases the rate on a year-over-year basis while also providing lower interest rates than those of other nations with favourable macroeconomic variables.

In our case, it is very unlikely that rupee hits parity with dollar due to market forces of demand and supply, therefore any positive effect of appreciation on foreign investment would be far outweighed by the negative effects of currency appreciation.

5. Conclusion:

- A significant currency appreciation as is the case in our research would significantly hurt competitiveness of domestic goods and services.
- Due to the extreme nature of the appreciation, the downward sloping part of the Reverse J curve would be very steeply sloped, i. e., the magnitude of rate of change (fall) in trade balance would be huge.
- The exchange rate and stock market are the two fundamental financial markets in the world. These two markets are playing a key role in international business all over the world. An appreciating rupee will harm India's exporters, reducing overall market earnings growth. Due to a causality between exchange rate and foreign investment, this change in exchange rate would affect FII and FDI, they would fall.
- Foreign education for domestic residents of India would become exceptionally cheaper. This psychological breach of the Indian rupee would have a massive impact on the tourism industry as travel would become significantly affordable. However, non-resident Indians (NRIs) who send money back home in the form of remittances will end up rarely sending anything in the rupee value.

Bibliography

Impact of Exchange Rate on Stock Market under International Journal of Economics and Financial Issues ISSN: 2146-4138 by Seri Suriani, M. Dileep Kumar, Farhan Jamil, Saqib Muneer

EXCHANGE RATE PASS-THROUGH IN INDIA: AN EXPLORATION WITH SECTORAL IMPORT PRICES by Pradyut Kumar Pyne and Saikat Sinha Roy

University of Denver Digital Commons @ DU citing "An Analysis of the Appreciation of the Chinese Currency and Influences on China's Economy" by Lina Ma, University of Denver

Reserve Bank of India's Handbook of Statistics on the Indian Economy 2021- 2022

Granger Causality Between Exchange Rate and Stock Price: A Toda Yamamoto Approach under International Journal of Economics and Financial Issues ISSN: 2146-4138 by Sima Siami-Namini, Department of Agricultural and Applied Economics, Texas Tech University, USA

Chapter 5: Inflation and Exchange rate pass through by The World Bank

Exchange Rate Passthrough: Theory by Brent Neiman, Edward Eagle Brown Professor of Economics and William Ladany Faculty Scholar, University of Chicago Booth School of Business

THE RELATIONSHIP BETWEEN EXCHANGE RATE AND FIIs IN INDIA by Pratibha Maurya

A Study of Relationship between Foreign Institutional Investment and Exchange Rate Movement in India by Kanika Dhingra (Indian Institute of Foreign Trade) and Sheeba Kapil (Indian Institute of Foreign Trade)

The Effects of Rupee Dollar Exchange Rate Parity on the Indian Stock Market, 2019, IJOPAAR, by Association for Pure and Applied Research

Cointegration and Causal Relationship between Exchange Rates and Stock Returns: A Study on Indian Context by Satish Batchu and K.V. Radha

Influence of Exchange Rate on Foreign Direct Investment Inflows: An Empirical Analysis Based on Co-Integration and Granger Causality Test by Anna M. Gil-Lafuente

Exchange Rate Passthrough: Article by Wikipedia

Exchange Rate Pass-through in India under Economic and Political Weekly by Swapnil Suryavanshi

Slump of Indian Rupee by Journals of India

J Curve: Theory, Its Uses, and an Example by WILL KENTON, reviewed by MICHAEL J BOYLE and fact checked by DIANE COSTAGLIOLA

Bibliography

The Reverse J- curve by Enterprise, Economics and Business

J-Curve. Article by WallStreet mojo Team. Reviewed by Dheeraj Vaidya, CFA, FRM

Can the Indian rupee replace the dollar as an international currency? | Priyanka Deo | TIMES OF INDIA |

References

Impact of Exchange Rate on Stock Market under International Journal of Economics and Financial Issues ISSN: 2146-4138 by Seri Suriani, M. Dileep Kumar, Farhan Jamil, Saqib Muneer

EXCHANGE RATE PASS-THROUGH IN INDIA: AN EXPLORATION WITH SECTORAL IMPORT PRICES by Pradyut Kumar Pyne and Saikat Sinha Roy

Granger Causality Between Exchange Rate and Stock Price: A Toda Yamamoto Approach under International Journal of Economics and Financial Issues ISSN: 2146-4138 by Sima Siامي-Namini, Department of Agricultural and Applied Economics, Texas Tech University, USA

Exchange Rate Passthrough: Theory by Brent Neiman, Edward Eagle Brown Professor of Economics and William Ladany Faculty Scholar, University of Chicago Booth School of Business

Chapter 5: Inflation and Exchange rate pass through by The World Bank

THE RELATIONSHIP BETWEEN EXCHANGE RATE AND FIIs IN INDIA by Pratibha Maurya

A Study of Relationship between Foreign Institutional Investment and Exchange Rate Movement in India by Kanika Dhingra (Indian Institute of Foreign Trade) and Sheeba Kapil (Indian Institute of Foreign Trade)

The Effects of Rupee Dollar Exchange Rate Parity on the Indian Stock Market, 2019, IJOPAAR, by Association for Pure and Applied Research

Cointegration and Causal Relationship between Exchange Rates and Stock Returns: A Study on Indian Context by Satish Batchu and K.V. Radha

Influence of Exchange Rate on Foreign Direct Investment Inflows: An Empirical Analysis Based on Co-Integration and Granger Causality Test by Anna M. Gil-Lafuente

Can the Indian rupee replace the dollar as an international currency? | Priyanka Deo | TIMES OF INDIA |

REVOLUTIONIZING MARKET APPROACH THROUGH INFORMATION TECHNOLOGY

**A Study on Motivating and Influencing Consumer Behavior
Using the Theory of Reasoned Action**

Abhiraj Gawade, Adarsh Patil, Navneet Kulkarni

KLS Gogte Institute of Technology, Department of MBA, Karnataka



Abstract

This research paper aims to examine the role of information technology in revolutionizing the market approach to motivate and influence consumer behavior, specifically through the lens of the Theory of Reasoned Action (TRA). The study investigates how information technology, including social media and online marketing strategies, can be utilized to take decisions by the consumers. Using a dual-method approach, this study employs both qualitative and quantitative data collection methods, including surveys, to gather insights from consumers on their attitudes and intentions towards IT

promoted marketing messages.

The findings of this study suggest that information technology plays a significant role in motivating and influencing consumer behavior by creating personalized and targeted messages that align with consumers' attitudes and intentions. The study also highlights the importance of understanding consumers' beliefs and attitudes towards a product or brand, as well as the need for transparency and authenticity in marketing messages. Overall, this research paper contributes to the growing body of literature on the role of information technology in transforming

traditional marketing approaches and sheds light on the potential of the Theory of Reasoned Action as a framework for understanding and influencing consumer behavior in the digital age.

Keywords – Information Technology, Consumer Behavior, Belief, Online Shopping.

Introduction

- What is IT?

Information technology (IT) is the use of computer systems or devices to access information. Information technology is responsible for such a large portion of our workforce, business operations and personal access to information that it comprises much of our daily activities. Whether you are storing, retrieving, accessing or manipulating information, IT greatly impacts our everyday lives.

What Are the Types of Information Technology?

Information technology is a broad term that involves the use of technology to communicate, transfer data and process information.

The different trends within information technology include, but aren't limited to:

- Analytics
- Automation
- Artificial intelligence
- Cloud computing
- Communications
- Cyber security

This list is by no means exhaustive and new applications for technology are constantly emerging.

Why Do We Need Information Technology?

Information technology (IT) in marketing refers to the use of technology to improve the efficiency and effectiveness of marketing activities. IT enables marketers to gather, analyze, and use data to create targeted campaigns and deliver personalized experiences to customers.

Some examples of IT in marketing include:

1. Customer Relationship Management (CRM) software: This software allows companies to manage their interactions with customers, track customer behavior, and personalize their marketing efforts.
2. Marketing Automation: This software helps automate repetitive marketing tasks, such as email campaigns, social media posts, and website updates, allowing marketers to focus on strategic activities.
3. Analytics Tools: These tools help companies track and analyze customer behavior, website traffic, and marketing campaign performance to optimize marketing efforts and improve ROI.
4. Social Media Management: This software allows companies to manage their social media presence, engage with customers, and measure social media performance.

Overall, IT plays a critical role in modern marketing by providing marketers with the tools and insights they need to create effective campaigns and deliver personalized experiences to customers.

Trust Commitment Theory

The commitment-trust theory of relationship marketing says that two fundamental factors, trust and commitment, must exist for a relationship to be successful. Relationship marketing involves forming bonds with customers by

meeting their needs and honoring commitments. Rather than chasing short-term profits, businesses following the principles of relationship marketing forge long-lasting bonds with their customers. As a result, customers trust these businesses, and the mutual loyalty helps both parties fulfill their needs.

Trust

Trust is the confidence both parties in the relationship have that the other party won't do something harmful or risky, according to the book "Relationship Marketing and Customer Relationship Management," by Annekie Brink and Adele Berndt. Businesses develop trust by standing behind their promises.

Commitment

Commitment involves a long-term desire to maintain a valued partnership, according to Brink and Berndt. That desire causes the business to continually invest in developing and maintaining relationships with its customers. For example, a business might follow up after a purchase to ensure a customer was satisfied with her experience. If not, the business might refund the customer or offer a discount on her next purchase. Further, the business could incorporate the feedback to ensure that other customers don't have the same bad experience. In other words, through a series of relationship-building activities, the business shows its commitment to the customer.

Effect

The results of a relationship based on commitment and trust are cooperative behaviors that allow both parties to fulfill their needs. Customers not only get the

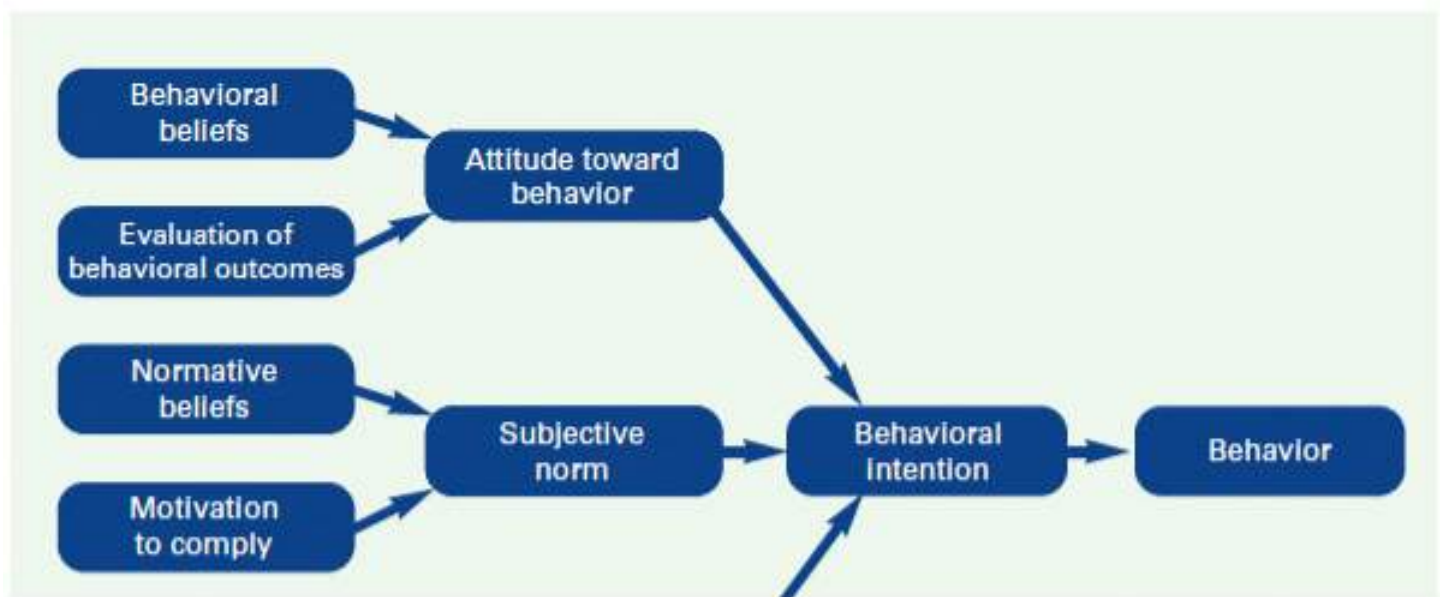
product or service they're paying for, but they also feel valued. Your business receives customer loyalty in return, which is valuable, because you won't have to waste resources acquiring new customers. In other words, investing money in excellent customer service actually can save you money, because you won't have to invest in, for example, numerous marketing campaigns to obtain new customers.

Considerations

Few businesses have the resources to develop long-term relationships with every customer. That's why it's important to identify the customers who are most valuable to your business and focus your efforts on them. Identifying and developing relationships with the right customers allows you to devote your resources to the customers who mean the most to your business's overall strategy, according to Brink and Berndt.

Theory of Reasoned Action

The Theory of Reasoned Action was initiated by Ajzen and Fishbein (1980), this theory was developed to explain how a consumer leads to a certain buying behavior and structured using the basic assumption that humans behave in a conscious way and consider all available information. The desire is determined by two independent variables, namely their attitude and subjective norms. It can be said that attitudes will affect behavior through a careful and reasoned decision-making process and will have a limited impact on three things. First, attitudes that are carried out towards behavior are based on attention to the results that occur when the behavior is carried out. Second, the behavior carried out by an individual is not



(Figure 1 – Theory of Reasoned Action)

(Img Source – *how communications work blog*)

only based on views or perceptions that are considered correct by the individual, but also pays attention to the views or perceptions of others who are close to or related to the individual. Third, attitudes that arise are based on the views and perceptions of individuals, and paying attention to the views or perceptions of others on the behavior, will lead to behavioral intentions that can become behavior.

Attitudes defined as a feeling that is believed to be a positive or negative expression in relation to the achievement of an objective. If people believe that performing a behavior will lead to mostly positive outcomes then they will hold a favorable attitude. Contrary, a person who believe that performing a behavior will produce mostly negative outcomes, then they will have an unfavorable attitude. For example, if people express their desire to

carry out an activity, then that person is more likely to do it than people who don't say what they want.

Subjective norms represent person's beliefs about how people around them perceive the behavior to think whether they should or should not perform the behavior. A person who believes that most referents with whom they are motivated more to comply think, that they should perform the behavior will receive social pressure to do so (Lada et al., 2009). It can be concluded, that a person's behavior has something to do with subjective attitudes and norms. The greater support of subjective attitudes and norms, the stronger a person's desire to do something. In addition, a person's beliefs when liking or disliking an action and supported by their perception of the expectations of the people around them for the action can form a person's interest in carrying out the action.

Literature Review

Sr No	Author	Methodology	Findings
1	K Pongiannan Et al. (2019)	Conceptual	In the context of interactive advertising which involves a creative way of delivering messages that attracts the consumers using animations, audio-visual effect using multiple channels like email & display advertising. Thereby helping marketers to understand consumer needs and demands.
2	Manfred Mayer. Et al (2011)	System	It has explained that the concept of Admotional that identifies issues for long term enhancement of online ad considering multiple factors into account. The Admotional system selected the appropriate campaign while dynamically creating customized ads depending upon the extensive database for efficient evaluation.
3	NuralZarirah Nizam. Et al (2018)	Survey	The study reveals that consumer who tends to believe the information printed on the product or are likely to have a favorable attitude of purchase which reflects the attitude towards the product and brand.
4	Harshita Bhatnagar. Et al (2014)	Survey	The research was to see the comparative difference between traditional and online media and its effect on customer preference and awareness. Today online and traditional advertisements are both complimentary in nature.
5	D S Soegoto. Et al (2018)	Observation	The paper focuses on the role of IT in media and advertisement. The observation indicates that Business owners can use technological developments to reduce cost, increase market share, and target users using promotions.
6	Lisette de vries. Et al (2012)	Model	The research aims to understand factors driving brand post popularity based on a conceptual model considering multiple characteristics (eg. Vividness, interactivity.) Brand posts based on such characteristics can enhance the number of likes.

Sr No	Author	Methodology	Findings
7	Ong ChoonHee. Et al (2018)	Survey	This research was to understand the influence of online advertisement on consumer purchasing behavior. The study further suggests that social media advertising tends to have a higher influence on consumer purchasing behavior and had maximum effects and coverage to reach the targeted markets in terms of food and beverages.
8	Rodgers & Thorson (2013)	Conceptual	The research focused on identifying the model of online processing and its internet function. It further provides insight on the classification of Internet ads followed by common features among these advertisements to understanding the measuring factors for interactive advertisement which includes time spent on the website, response time, and total time devoted to the information on the interactive ad.
9	Martins. Et al (2018)	Conceptual	The findings suggested that consumer find smart phone advertisement to be credible and good referencing of information whereas smart phone advertisement can also create negative feelings towards a brand due to information that do not create any value to the customer.
10	Schumann et al. (2001)	Trend Analysis	This paper focused on understanding theThe future implication of online interactive advertisement through Integrated marketing communication lens and further concluded that Interactive advertisement will likely evolve, expand and will remain a key successful advertising and product/service interaction.
11	Busen and Mustaffa (2014)	Conceptual	The study proposed various domains of advertisement and brand equity development explaining, the management of studying the effectiveness of advertising. The paper also examines the role of advertisement in the growth of brand equity measurements.

Sr No	Author	Methodology	Findings
12	Cheung and To (2017)	Structural Equation Model	The in-app advertisement is an evolving feature of interactive advertising and is considered to be more reliable than an online advertisement as it provides various options like swipe, sensor, and GPS which helps in making the message smaller, engaged, and uninterrupted.
13	Mishra Et al. (2017)	Survey	Online advertising is becoming a challenge for print ads as various online applications; social sites help to lead towards the data instantly than other advertisement media existing. The research considered multiple factors in defining the effectiveness of the online advertisement.
14	Ana Maria Soares. Et al (2014)	Survey	The paper is concentrated on perceived enjoyment and the influence of the responses to OSN advertisements. Perceived enjoyment is considered to be a predicting variable for both the social influence and advertisement variables.
15	Davidavičienė . (2012)	Conceptual	In this study it points out the effectiveness of online advertising is often measured by higher click through rates while missing out on other contributing factors like attitudinal responses.
16	Andrew, L., and C. Bianchi. (2013.)	Conceptual	The study examines Chilean consumers' beliefs, perceptions of risk, and subjective norms about continued purchasing on the Internet. Findings show that consumers' attitude towards purchasing on the Internet is an influential factor on intentions to continue Internet purchasing

Sr No	Author	Methodology	Findings
17	Ajzen and Fishbein's	Exploratory	According to this theory, the causal sequence is activated by the emergence of 2 types of beliefs: those beliefs that a person has about whether other people would approve or disapprove of his/her performing a specific behavior, together with the motivation to comply with what the person thinks others would want him/her to do. It is argued that even when the causal sequence is "on" there are difficulties in maintaining that each stage in the sequence follows from the preceding stage.
18	Godin, G. (1994).	Survey	According to the theory of reasoned action, the proximate determinants of the intent to adopt a behavior are the individual's personal attitude and the influence of social factors. The theory of planned behavior also includes the concept of perceived behavioural control. A review of published studies indicates that intention and past behavior are 2 important factors for the prediction of future behavior
19	Ahmed Sulehri	Survey	This study aims at analyzing the buying behavior of consumers in organized retail super-store setup. Theory of Reasoned Action is been used in the explanation of the consumer behavior in retail sector of developing countries. The Subjective norms, attitudes, and intentions towards buying behavior were mapped during the shopping. The literature was reviewed for identification of the variables.
20	Torben Hansen a, Jan Møller Jensen b, Hans StubbeSolgaard	Conceptual	This paper tests the ability of two consumer theories—the theory of reasoned action and the theory of planned behavior—in predicting consumer online grocery buying intention. These results suggest that the theory of planned behavior provides the best fit to the data and explains the highest proportion of variation in online grocery buying intention.

Sr No	Author	Methodology	Findings
21	Julie Fitzmaurice	Survey	It is suggested that eagerness to engage in a behavior encapsulates emotional commitment, and including this affective variable would further broaden the cognitive approach taken to model a consumer's intention to engage in a behavior. A model that links hedonic involvement, self-expressive involvement, self-concept congruity, subjective norm, and attitude toward the behavior to both intentions and eagerness is proposed.
22	Elahe Kordi Ghasrodashti	Survey	The purpose of this study is to examine the antecedents of customers' brand-switching behavior with a theoretical approach. The model is developed by using the theory of pull-push-mooring (PPM) and theory of reasoned action (TRA) to examine consumers' brand-switching behavior.
23	Marwin H. M. Snippe, Gjalt-Jorn Ygram Peters, Gerjo Kok	Descriptive	Self-identity has frequently been proposed as a useful addition to the Theory of Planned Behavior; yet Fishbein and Ajzen decided to not include self-identity when they published that theory's successor, the Reasoned Action Approach. Therefore, establishing whether self-identity has added value in the Reasoned Action Approach first requires synthesis of the used operationalizations to develop an operationalization that captures self-identity but not attitude and perceived norm.
24	Martin Fishbein's Legacy	Exploratory	The reasoned action approach that Martin Fishbein pioneered has emerged as the dominant conceptual framework for predicting, explaining, and changing human social behavior. It has been shown that behavioural, normative, and control beliefs provide the basis, respectively, for attitudes toward the behavior, subjective norms, and perceived behavioural control; that these three factors jointly account for a great deal of variance in behavioural intentions.

Sr No	Author	Methodology	Findings
25	Fitzgerald, L. (2004.)	Exploratory	The findings suggest that for non-adopters, there is no normative influence from referents in either network. For adopters, one online and one offline referent norm positively influenced this group's intentions to use online transaction facilities. The implications of these findings are discussed together with future research directions.

Need for the study

By understanding and utilizing the TRA, businesses can develop effective marketing strategies that can influence consumer behavior and drive sales. This can be done by creating targeted advertisements that appeal to the attitudes and subjective norms of the target audience. Additionally, businesses can use social media platforms to create a sense of community and promote positive social norms surrounding their products or services. The study concentrates on the connection between TRA and the decision making process of the consumer and how it affects the businesses eventually.

Objectives of the study

The study aims to explore how information technology can be used to influence each of these determinants, and ultimately motivate and influence consumer behavior. Specifically, the study aims to achieve the following objectives:

- To review the literature on the theory of reasoned action and its applicability to the use of information technology in motivating and influencing consumer behavior

- To conduct empirical research using surveys and/or experiments to test the effectiveness of different information technology tools and platforms in influencing and motivating consumer behavior.
- To understand four major parameters of TRA, which are Beliefs, Experiences, Normative Beliefs and Motivation to comply.
- Understanding of how information technology can be leveraged to revolutionize the market approach and influence consumer behavior.

Scope of the study

Overall, the study aims to provide insights into understanding information technology and its role in revolutionizing the market approach and help consumers effectively decide using the Theory of Reasoned Action.

Data Collection Methods

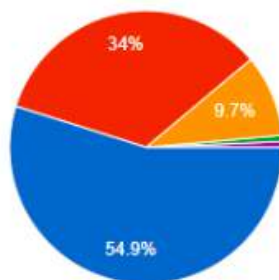
Primary Data has been collected from 144 respondents which are in the age group of 18-28 using a Google Form. Secondary data is collected from various articles, journals, online magazines and secondary sources.

Data Analysis and Interpretation

The question wise data is presented for the 10 questions and analysis is provided for the same. The questions were in accordance with four parameters of TRA – Beliefs, Experience, Normative Beliefs and Motivation to comply.

1. How often do you research a product before

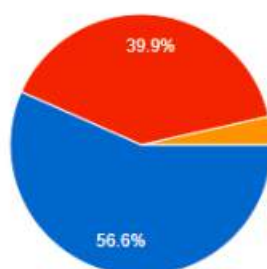
144 responses



This question deals with the parameter of “Belief”. We can see that 54.90% of the respondents always research before buying any kind of product online. We also see that 34% voted for “Often” and 9.7% voted for “Sometimes” This shows that consumers do believe in thorough research before buying anything online.

2. Do you think that availability of online reviews and ratings affects your decision to purchase a product?

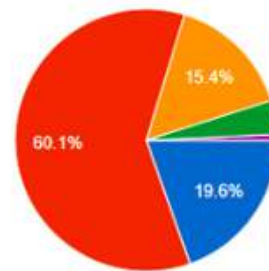
143 responses



The above question deals with the parameter of “Experience”. We see that 56.6% of respondents definitely have an effect on the decision making before buying a product. The availability of online reviews also affects the decision making for 39.9% of respondents. This states the importance of online reviews on the decision making of people.

3. How important is it for you to read reviews and ratings before making a purchase decision online?

143 responses



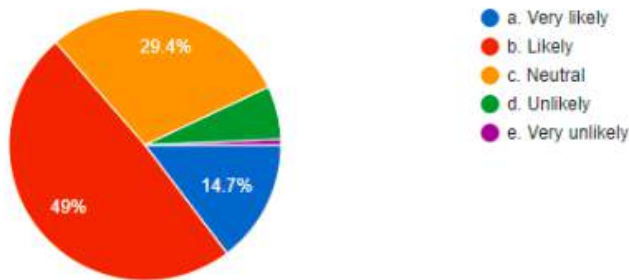
- a. Extremely important
- b. Very important
- c. Moderately important
- d. Slightly important
- e. Not important

This question too deals with the parameter of “Belief”. It shows how much importance a person gives to reviews and ratings before making a decision of buying online. We can see that 60.1% of respondents have given their preference to “Very Important” and 19.6% have given to “Extremely Important” hence showing majority belief of the respondents.

The next particular question deals with the parameter of “Normative Beliefs”. We can see that 49%, almost half of the respondents are likely to buy online based on the recommendations of an online influencer. 14.7% of the respondents have also opted for “Very Likely”. Some people have also shown neutrality. But it is believed that majority of the online-buying respondents tend to believe to comply with the social media influencers that promote the products online.

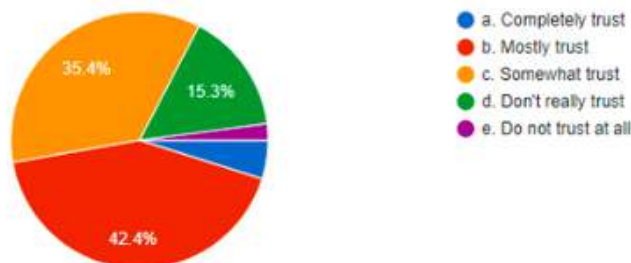
4. How likely are you to make a purchase decision based on the recommendations of an online influencer on social media?

143 responses



5. How much do you trust the recommendations of social media influencers or online celebrities when making purchase decisions?

144 responses



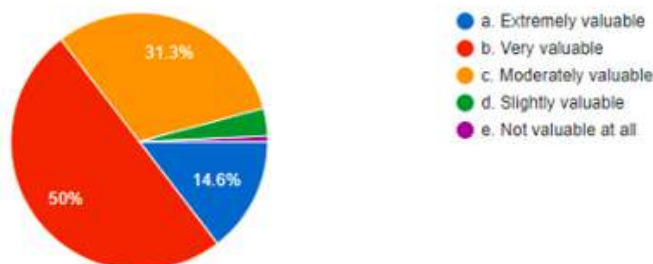
6. How important is it for you to be able to compare prices and product features online before making a purchase decision?

142 responses



7. How much do you value the convenience of being able to make a purchase online?

144 responses



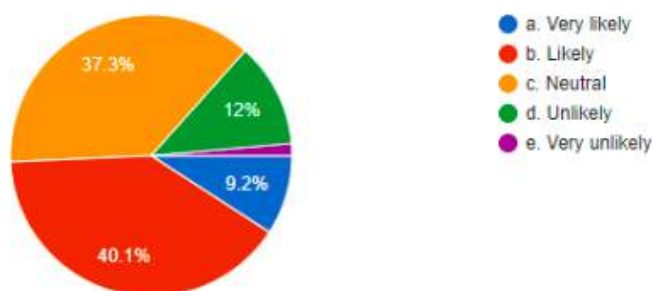
This particular question works on the parameter of “Motivation to comply”. We can see that majority of the respondents either mostly trust or somewhat trust the recommendations of the social media influencers. That chunk forms around almost 45-47% of the respondents, who are motivated to comply with social media influencers when it comes to buying online.

The next question deals with the parameter of “Belief”. Based on verbal confessions by the respondents as well as the numbers in the above graph show that the respondents believe that comparing prices and product features online as well as the comparison of prices between online and offline plays a very important role in the buying decision making process.

The question deals with the parameter of “Experience”. It asks the consumer as to how much do they actually value the experience of sitting at home and shopping at that comfort level of their space. We can see from the graph that majority of the respondents valued the convenience part of online shopping and the ease of access.

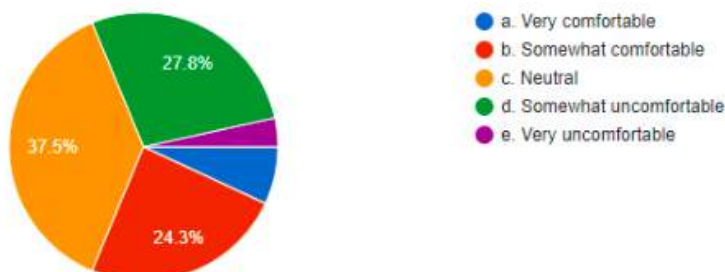
8. How likely are you to make a purchase decision based on recommendations from artificial intelligence or machine learning algorithms?

142 responses



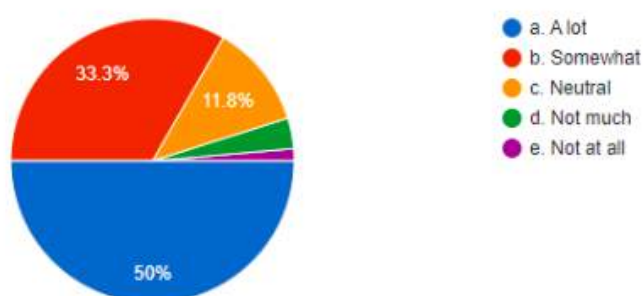
9. How comfortable are you with sharing your personal information online in order to receive personalized product recommendations?

144 responses



10. How much do you think that Information Technology has affected your ability to make informed purchase decisions?

144 responses



When it comes to AI and ML, we can connect it again with the parameter of “Belief”. The people who believe in AI and ML are usually the new age segment of consumers. Almost 51% of the respondents were able to relate and buy using AI and ML and hence we can see that the newer generations seem to adopt to the changing phenomenon that IT has brought in the field of marketing.

This particular question deals with the parameter of “Belief”. We can see that most of the people are having a neutral approach when it comes to sharing data. When asked, the most common reason that the respondents gave was that there is no shopping possible online if the right details aren’t provided. Hence the younger lots of respondents are getting used to sharing the data, but they make sure that they draw a line with respect to personal data and permissible data.

The last question is a summary that deals with overall effect of Information Technology on consumers to make informed purchase decisions online. Almost 83.33% of the respondents feel that they have received ample help from Information technology to make buying decisions. It has widened their scope and reduced the risk of getting faulty goods/adulterated goods.

Theoretical Implications

This research paper has several theoretical implications that can advance the field of marketing and consumer behavior. Some of these implications are:

1. Theoretical advancement of the theory of reasoned action: The study contributes to the advancement of the theory of reasoned action by applying it to the context of online shopping and exploring the influence of IT on consumer behavior. This research provides further evidence of the validity and usefulness of the theory of reasoned action in explaining consumer behavior.
2. Advancement of the knowledge on the impact of IT on consumer behavior: The research paper contributes to the existing literature by providing insights into how IT can influence consumer behavior. Specifically, the study explores how different IT tools can affect the factors that influence consumers' attitudes and beliefs, which in turn can drive their behavior.
3. Implications for marketing practitioners: The research provides insights into the types of IT tools that are most effective in motivating and influencing consumer behavior, which can help businesses design more effective marketing strategies.
4. Contribution to the field of online shopping behavior: The research contributes to the understanding of online shopping behavior by exploring the factors that influence consumers' attitudes and beliefs in this context. By identifying the factors that are most influential, the study provides valuable insights into how businesses can design effective IT strategies to drive consumer behavior in the online shopping environment.

Conclusion

In conclusion, the use of information technology (IT) has revolutionized the way markets operate, and this research paper has explored how IT can be used to motivate and influence consumer behavior using the theory of reasoned action. The findings suggest that businesses that effectively utilize IT tools can significantly impact consumer behavior, which can lead to increased sales, improved customer loyalty, and overall business success. The answers of the questionnaire are mostly skewed in favor of the thought process that IT has had a significant impact in the way the today's consumers make buying decisions regarding various products.

The study found that the theory of reasoned action is a useful framework for understanding how IT can influence consumer behavior, particularly in the context of online shopping. By understanding the factors that influence consumers' attitudes and beliefs, businesses can design effective IT strategies to influence these factors and ultimately drive consumer behavior.

Overall, this research highlights the importance of IT in modern marketing and emphasizes the need for businesses to stay up-to-date with the latest technological advancements to remain competitive. It also gives us an insight as to what does an consumer believe in while making an online purchase and using IT whole taking a buying decision. Furthermore, it suggests that a deeper understanding of consumer behavior can be achieved by using the theory of reasoned action as a framework for analysis.

References

<https://smallbusiness.chron.com/commitmenttrust-theory-relationship-marketing-65393.html>

<https://www.comptia.org/content/articles/what-is-information-technology>

<https://accounting.binus.ac.id/2021/11/15/theory-of-reasoned-action-for-predicting-consumer-behaviour/#:~:text=The%20Theory%20of%20Reasoned%20Action,and%20consider%20all%20available%20information.>

K. Pongiannan, J. Chinnasamy, "Role of online advertising in digital era for business sustainability: a conceptual analysis", 2019

M. Meyer, M. Balsam, A. O'Keeffe, C. Schlüter, "Admotional: Towards Personalized Online Ads", IJCSA. 8. 59-80, 2011

N. Z. Nizam, J. A. Jaafar, and S. H. Supaat, "Interactive Online Advertising: The Effectiveness of Marketing Strategy towards Customers Purchase Decision," MATEC Web of Conferences, vol. 150, p.05043, 2018.

H. Bhatnagar, "Online Vs Traditional Advertisement Media- A Comparative Analysis", 2013

D. S. Soegoto and H. Bastian, "Implementation of Information Technology as an Advertising Media," IOP Conference Series: Materials Science and Engineering, vol. 407, p.012042, 2018.

O. C. Hee and W. S. Yen, "The Influence of Advertising Media towards Consumer Purchasing Behavior in the Food and Beverage Industry in Malaysia," International Journal of Human Resource Studies, vol. 8, no. 2, 2018.

S. Rodgers and E. Thorson, "The Interactive Advertising Model," Journal of Interactive Advertising, vol. 1, no. 1, pp. 41-60, 2000.

J. Martins, C. Costa, T. Oliveira, R. Gonçalves, and F. Branco, "How smartphone advertising influences consumers purchase intention," Journal of Business Research, vol. 94, pp. 378-387, 2019.

D. W. Schumann, A. Artis, and R. Rivera, "The Future of Interactive Advertising Viewed Through an IMC Lens," Journal of Interactive Advertising, vol. 1, no. 2, pp. 43-55, 2001.

S. M. S. Busen and C. S. Mustaffa, "The Role of Interactive Advertisements in Developing Consumer-based Brand Equity: A Conceptual Discourse," Procedia-Social and Behavioral Sciences, vol. 155, pp. 98-103, 2014.

J. M.-S. Cheng, C. Blankson, E. S.-T. Wang, and L. S.-L. Chen, "Consumer attitudes and interactive digital advertising," International Journal of Advertising, vol. 28, no. 3, pp. 501-525, 2009.

References

- A. Mishra and D. Mahalik, "Impact Of Online-Advertising On Consumers.," *International Journal of Advanced Research*, vol. 5, no. 6, pp. 1935–1939, 2017.
- A.M.SoareshandJ.C.Pinho, "Advertisinginonlinesocialnetworks:theroleof perceived enjoyment and social influence," *Journal of Research inInteractiveMarketing*, vol. 8, no. 3, pp. 245–263, 2014.
- V.Davidavičienė, "EffectivenessFactorsofOnlineAdvertising," *The7thInternational Scientific Conference "Business and Management 2012".Selectedpapers*, 2012.
- Bianchi, C., & Andrews, L. (2018). Consumer engagement with retail firms through social media: an empirical study in Chile. *International Journal of Retail & Distribution Management*.
- Sarver, V. T. (1983). *Ajzen and Fishbein's" theory of reasoned action": A critical assessment*.
- Godin, G. (1994). *Theories of reasoned action and planned behavior: usefulness for exercise promotion. Medicine & Science in Sports & Exercise*.
- Sulehri, N. A., & Ahmed, M. (2017). Theory of reasoned action and retail agglomerations buying behavior for urban consumers. *The Business & Management Review*, 9(2), 263-266.
- Fitzgerald, L. (2004). The influence of social communication networks on intentions to purchase on the web. *International Journal of Internet Marketing and Advertising*, 1(2), 137-154.
- Hansen, T., Jensen, J. M., &Solgaard, H. S. (2004). Predicting online grocery buying intention: a comparison of the theory of reasoned action and the theory of planned behavior. *International Journal of Information Management*, 24(6), 539-550.
- Fitzmaurice, J. (2005). Incorporating consumers' motivations into the theory of reasoned action. *Psychology & Marketing*, 22(11), 911-929.
- KordiGhasrodashti, E. (2018). Explaining brand switching behavior using pull–push–mooring theory and the theory of reasoned action. *Journal of Brand Management*, 25(4), 293-304.
- Snippe, M. H., Peters, G. J. Y., &Kok, G. (2021). The operationalization of self-identity in reasoned action models: a systematic review of self-identity operationalizations in three decades of research. *Health Psychology and Behavioral Medicine*, 9(1), 48-69.
- Ajzen, I. (2012). Martin Fishbein's legacy: The reasoned action approach. *The Annals of the American Academy of Political and Social Science*, 640(1), 11-27.

INVESTING FOR A BETTER FUTURE: UNLEASHING THE POWER OF SUSTAINABLE FINANCE

Harsh Samvedi



Introduction

Greetings, fellow investors! Have you noticed the buzz surrounding sustainable finance and ESG investing lately? It's not just a passing trend; it's a powerful movement that's reshaping the investment landscape. In this article, we'll delve into how environmental, social, and governance (ESG) factors are gaining prominence and revolutionizing investment decisions. Join us on this insightful tour of the sustainable financial world!

ESG investing has become increasingly popular in recent years as investors recognize the value of aligning their portfolios with environmental objectives. Let's take a closer look at the "E" in ESG: environmental factors. Companies that prioritize environmental protection and sustainability are often better positioned for long-term success. A study by Harvard Business School revealed that businesses adopting environmentally friendly -

practices experienced a 4.8% increase in return on assets compared to their competitors. A prime example is Tesla, the electric vehicle pioneer. By focusing on clean energy and sustainable transportation, Tesla has not only disrupted the automotive industry but also achieved remarkable financial success. In 2020, despite a challenging global economic environment, Tesla's stock price soared by over 700%. This showcases how companies committed to environmental sustainability can generate significant value for investors.

Moving on to the "S" in ESG: social factors. Investing in companies that prioritize employee welfare, diversity, and community engagement can yield positive outcomes. Research indicates that diverse teams are more innovative and better equipped to solve complex problems. According to a McKinsey study, businesses with ethnically and racially diverse executi-

The WTF Chart of the New Year Tesla Share Price, Daily



Figure 1: Tesla stock growth over the years (Source: Sentieo)

ve teams are 36% more likely to generate above-average profitability. Patagonia, the outdoor apparel retailer, exemplifies a business that places a high priority on social issues. Patagonia has a long history of maintaining ethical labor standards, paying employees a living wage, and implementing sustainable supply chain management. This commitment to social responsibility has not only garnered customer loyalty but also translated into financial success, with Patagonia consistently reporting strong sales growth. Lastly, let's delve into the "G" in ESG: governance factors. Good governance ensures transparency, accountability, and ethical behavior within companies. A study by MSCI found that companies with

stronger corporate governance practices exhibited higher profitability and lower volatility. Moreover, companies with independent boards of directors and clear executive compensation structures tend to outperform their peers. Take Microsoft, for example. The tech giant has been lauded for its strong governance practices, including independent board oversight and effective risk management. Microsoft remains one of the most valuable corporations globally due to its commitment to responsible governance, which has translated into market success.

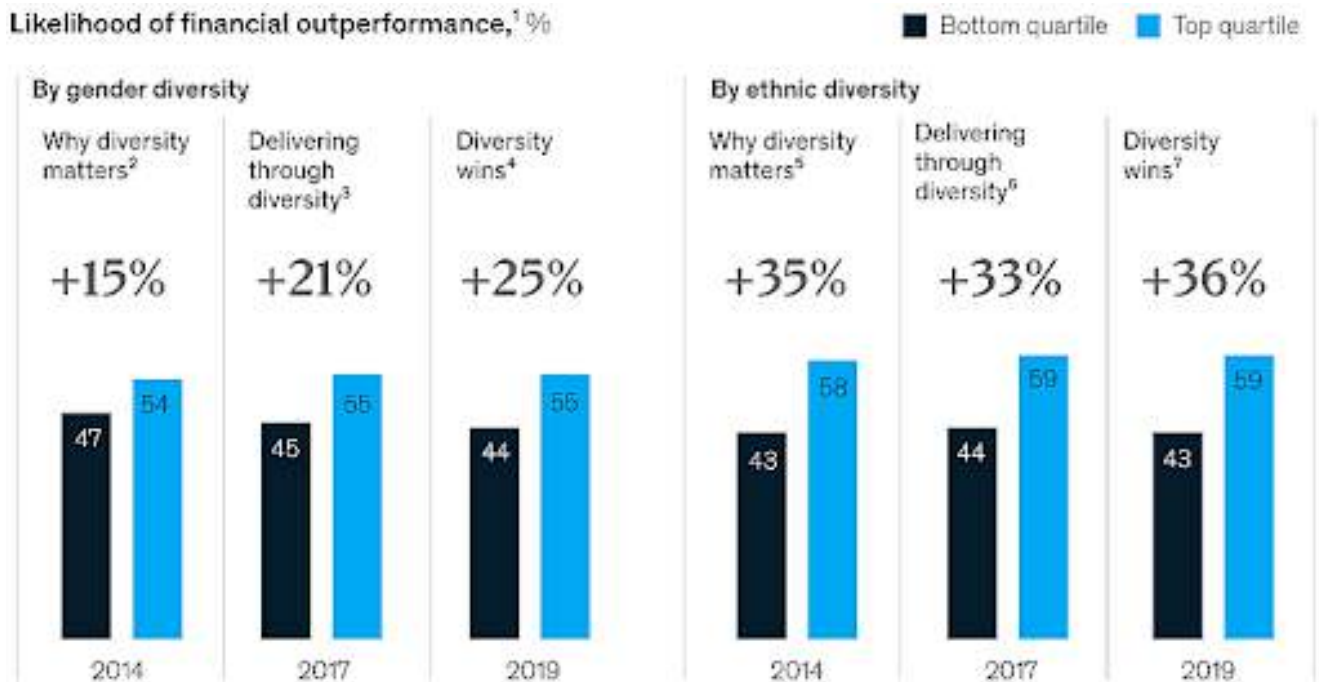


Figure 2: McKinsey 2019 analysis for diversity (Source: Diversity Wins data set)

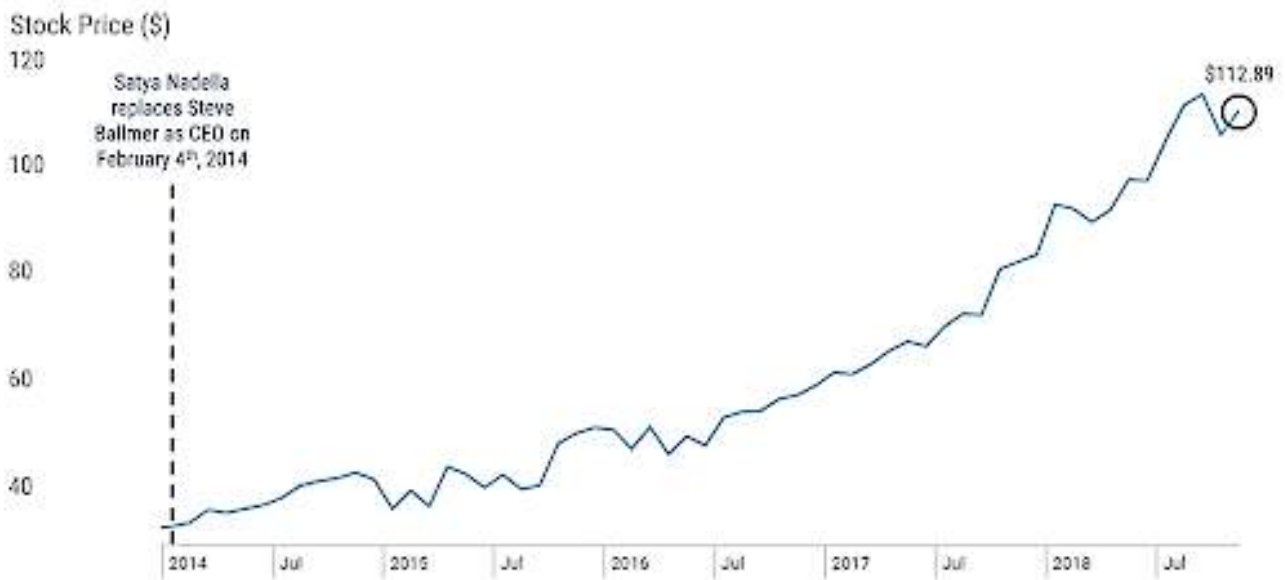


Figure 3: Microsoft stock grew over 200% with Nadella as CEO (Source: CB Insights)

Green bonds have emerged as a vital instrument within sustainable finance. These bonds are specifically issued to finance projects with positive environmental or social impacts. By investing in green bonds, individuals and institutions can directly support initiatives

like renewable energy projects, sustainable infrastructure development, and clean transportation. In recent years, green bonds have become increasingly popular, reflecting the growing need for sustainable investment solutions. In 2020, worldwide green bond issuance reached a record

\$269.5 billion, a 9% increase from the previous year. This growth signifies the rising awareness and commitment of investors to support projects addressing pressing environmental and social challenges.

can be rewarding. The Global Sustainable Investment Alliance reported that assets managed under sustainable themes reached \$1.7 trillion globally in 2020.

Impact investing takes sustainable investing a step further by seeking mea-

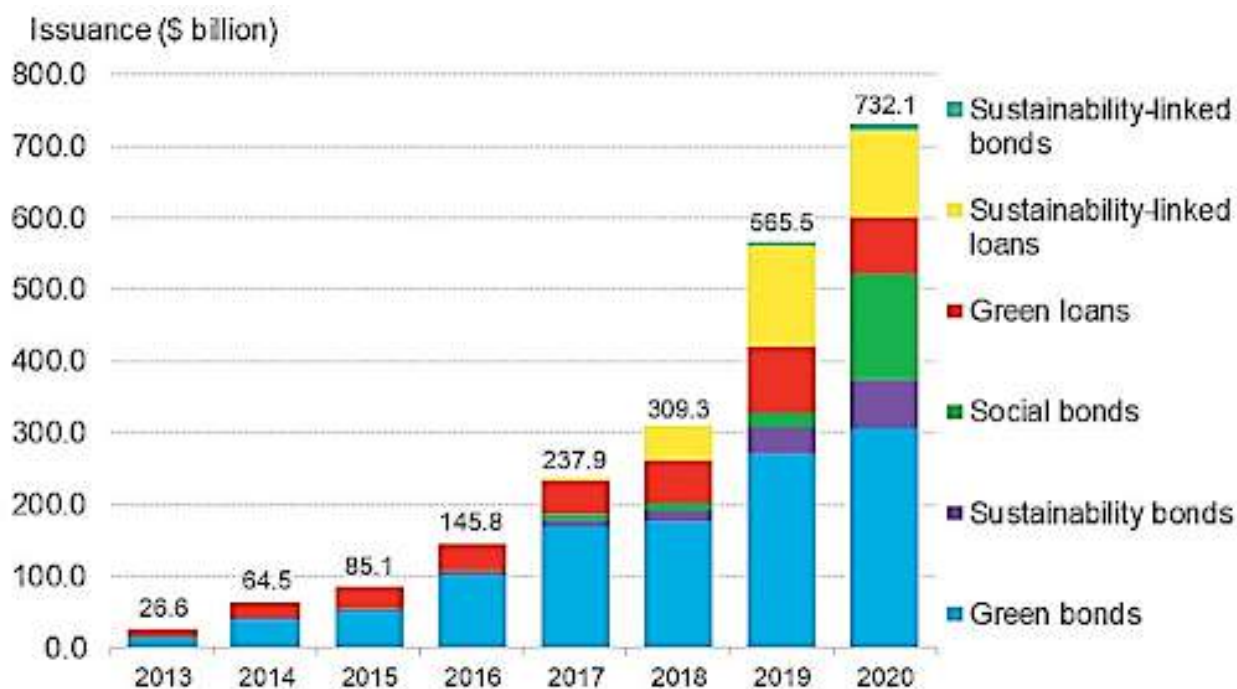


Figure 4: Global sustainable debt annual issuance, 2013-2020 (Source: BloombergNEF, Bloomberg L.P.)

Sustainable investment strategies encompass a wide range of approaches, including exclusionary screening, thematic investing, and impact investing. Exclusionary screening involves excluding certain industries, such as tobacco or weapons, from investment portfolios. By avoiding companies that engage in harmful practices, investors can align their investments with their values and contribute to positive change.

Thematic investing focuses on specific themes that have a positive impact on society and the environment. Clean energy is a popular thematic investment area, enabling investors to support the shift to a low-carbon economy and potentially increase their financial returns. Investments in businesses engaged in renewable energy production, energy efficiency, and sustainable technologies

surable social and environmental benefits alongside financial returns. This approach directs capital towards projects and organizations that actively address societal and environmental challenges. Impact investments can range from funding affordable housing and education initiatives to supporting sustainable agriculture and healthcare programs in underserved communities. The impact investment market experienced remarkable growth in recent years, with the Global Impact Investing Network (GIIN) reporting a market size of \$715 billion in 2020, a significant increase from \$502 billion in 2019. This surge in impact investing highlights the increasing recognition of the importance of investing for positive change.

Impact investing market has grown at 27% CAGR from \$25.4 billion to \$715 billion between 2013 and 2019

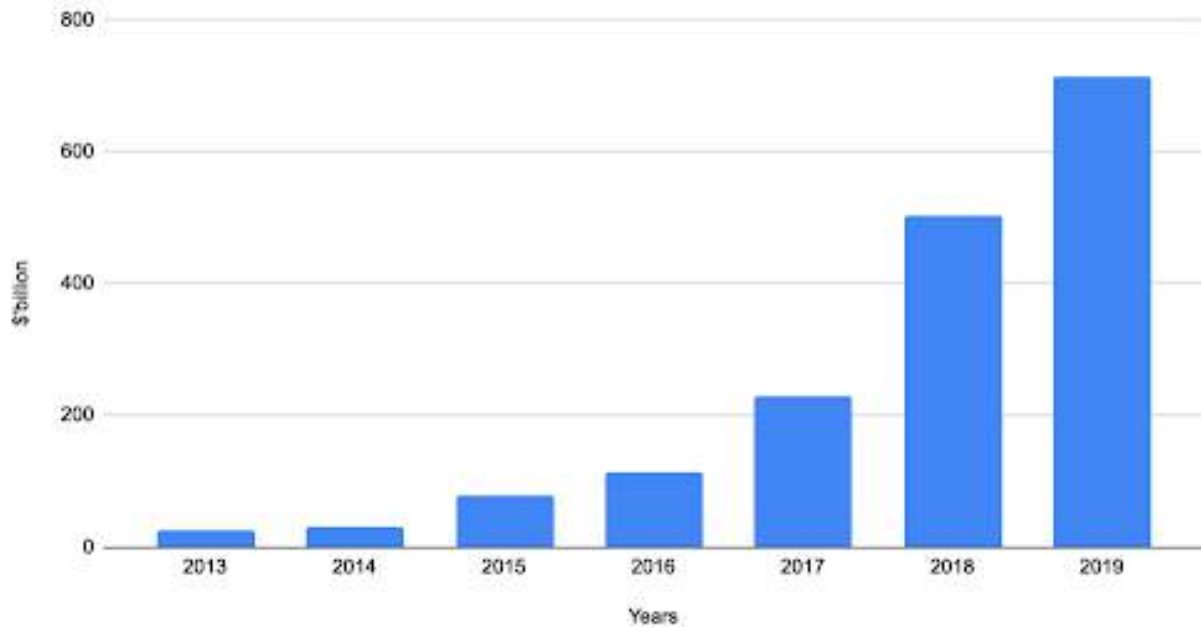


Figure 5: Impacting investing market growth from 2013-19 (Source: 2020 GIIN Annual Survey)



Figure 6: HUL's Sustainable Living Plan (Source: Economic Times)

Sustainable finance and ESG investing are no longer niche concepts; they have become integral to investment decision-making. The rise of ESG integration reflects a broader shift towards a more sustainable and responsible approach to capitalism. By considering environmental, social, and governance aspects, investors can make well-informed decisions that not only generate financial returns but also drive positive change in the world.

However, it's not just investors who are recognizing the benefits of embracing sustainable practices. Companies are also realizing that a strong commitment to ESG factors can enhance their reputation, attract socially conscious investors, and contribute to long-term success. Unilever, a multinational consumer goods company, has set ambitious sustainability goals under its Sustainable Living Plan. Unilever aims to reduce its environmental impact, improve the lives of millions of people, and have a positive social impact by integrating ESG principles into its business strategy.

Consumers and investors have responded favorably to this sustainability-focused strategy, elevating the company's standing in the market.

In conclusion, sustainable finance and ESG investing represent a powerful force reshaping the investment landscape. By integrating ESG factors into investment decisions, investors can identify risks and opportunities, support companies with strong sustainability practices, and contribute to positive change. Green bonds and sustainable investment strategies provide avenues for directing capital towards projects and organizations that have a positive environmental and social impact.

So, as you sip your coffee and ponder your investment choices, remember that your financial decisions can have a profound impact beyond just your portfolio. Embracing sustainable finance and ESG investing allows us to create a better future for both our wallets and our planet. Together, let's unleash the power of sustainable finance and invest in a brighter tomorrow!

References

Harvard Business School. (2011). The impact of a corporate culture of sustainability on corporate behavior and performance. Retrieved from: <https://www.hbs.edu/faculty/Publication%20Files/11-058.pdf>

Hong, H., & Kostovetsky, L. (2012). Red and blue investing: Values and finance. Journal of Financial Economics, 103(1), 1-19

Global Sustainable Investment Alliance. (2021). Global sustainable investment review 2020. Retrieved from: http://www.gsi-alliance.org/wp-content/uploads/2021/03/GSIR_Review2020F.pdf

BloombergNEF. (2021). Sustainable debt market mid-year 2021 update. Retrieved from: <https://about.bnef.com/sustainable-debt-market-mid-year-2021-update>

GIIN. (2020). Annual impact investor survey 2020. Retrieved from: <https://thegiin.org/research/publication/annualsurvey2020>

MACRO-ECONOMIC AND FINANCIAL IMPLICATIONS OF DECARBONIZATION: PAVING THE WAY FOR A SUSTAINABLE FUTURE

Dr. Badri Narayanan Gopalakrishnan & Adems Jimmy George



Introduction

Decarbonization, the process of reducing carbon dioxide (CO₂) emissions and transitioning towards a low-carbon or carbon-neutral economy, holds a significant macro-economic and financial implications. It involves embracing sustainable practices, adopting cleaner energy sources, and improving energy efficiency across various industries. This article delves into the multifaceted impacts of decarbonization, including the creation of green jobs, technological innovation, energy independence, environmental and health benefits, transitional risks, carbon pricing, and investment opportunities. Additionally, it highlights India's ambitious commitments and actions towards achieving a sustainable future. Clean energy will be created and used in various places, whether it comes from hydrogen-

fuels like ammonia or other future fuels. Countries won't be able to achieve their decarbonization goals without ships to carry clean energy around the globe. The electrical sector is best positioned to handle the problem swiftly and competitively due to the rising integration of renewable energy sources into its generation mix, making it the first challenge for an efficient energy transition. The second task is to further electrify other economic sectors to reduce carbon emissions, particularly in the areas of transportation (through electric cars) and buildings (via electric heat pumps).

Green Job Creation

Decarbonization efforts drive the development and implementation of sustainable practices, energy-efficient

infrastructure, and renewable energy technologies. Consequently, a substantial number of green jobs are created, encompassing clean technology production, energy management, research and development, and renewable energy production. These new employment opportunities contribute to improved labor market dynamics, lower unemployment rates, and stimulate overall economic growth.

Technological Innovation and Investment

Decarbonization necessitates significant technological innovation and investment in renewable energy sources, energy storage, grid infrastructure, and sustainable transportation. Such investments foster research and development (R&D) spending, resulting in technological advancements and enhanced productivity. These developments, in turn, drive economic expansion, productivity gains, and increased market competition.

Energy Independence and Security

By diversifying energy sources and reducing reliance on fossil fuels through decarbonization, countries enhance their energy independence. Embracing domestic renewable energy sources bolsters economic stability, reduces vulnerability to price fluctuations, and promotes energy security.

Environmental and health benefits

Decarbonization activities yield crucial environmental and health benefits, including improved air and water quality, reduced pollution, and enhanced public health outcomes. These positive externalities result in reduced healthcare costs and increased productivity stemming from a healthier workforce, leading to

substantial cost savings.

While reducing carbon emissions is vital for combating climate change, certain sectors of the economy heavily dependent on fossil fuels may face transitional risks and stranded assets. Industries such as coal, oil, and gas may experience challenges as efforts to limit global temperature rise render their reserves unusable. This transformation may also impact financial institutions with significant exposure to carbon-intensive industries.

Transitional Risks and Stranded Assets

While reducing carbon emissions is vital for combating climate change, certain sectors of the economy heavily dependent on fossil fuels may face transitional risks and stranded assets. Industries such as coal, oil, and gas may experience challenges as efforts to limit global temperature rise render their reserves unusable. This transformation may also impact financial institutions with significant exposure to carbon-intensive industries.

Landscape of Carbon Pricing and Regulation

Governments worldwide are pursuing policies to limit emissions, leading to the establishment of carbon pricing mechanisms such as carbon taxes or cap-and-trade systems. These mechanisms penalize carbon-intensive activities while offering financial incentives for decarbonization. Adapting to changing regulations becomes essential for firms to manage financial risks and identify opportunities during the transition.

Green Finance and Investment Opportunities

Decarbonization has spurred the rise of green finance, encompassing investments in clean technologies through avenues such

as green bonds, sustainable loans, and venture capital. Financial institutions can leverage this growing sector to diversify income sources and align portfolios with environmental goals.

Investor Preferences and ESG Considerations

Investors are increasingly focusing on environmental, social, and governance (ESG) factors. As decarbonization takes center stage globally, investors prioritize companies with robust sustainability practices, emissions reduction goals, and transition plans. Businesses that actively address ESG considerations are more likely to secure funding and gain a competitive advantage.

Although executives in the energy and natural resources sectors are still optimistic about their long-term goals of reaching net zero, they expect a short-term slowdown in the rate of decarbonization because of the volatility in the energy markets during the last year. They see increased coal burning to make up for natural gas shortages from Russian sources. According to Bain & Company's third annual Global Energy and Natural Resources study, many anticipate a return of attention to tackling shortages and affordability in the coming years.

India's Commitment to Decarbonization

India, with its robust and resilient macroeconomy, is emerging as one of the fastest-growing economies among the top 10 nations in the world. According to the International Monetary Fund (IMF), India's growth is projected at 6.3% in 2024, compared to the global average of 3%. Currently, India is the fifth largest economy globally, and the IMF predicts that it will become the third largest by 2027. Furthermore, India has set its -

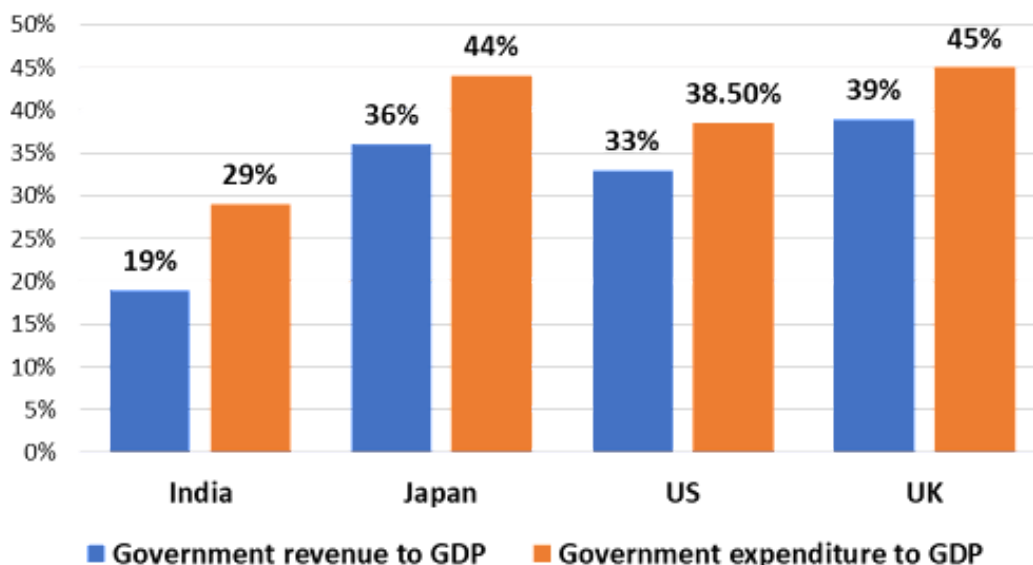
sights on becoming a developed nation by 2047.

One of the key factors contributing to India's economic potential is its demographic dividend. The country boasts a relatively young population, with an average age of 29 years and a staggering 875 million individuals of working age. This demographic advantage sets India apart from the aging populations prevalent in many other countries. Additionally, India has created the world's third-largest start-up ecosystem, signaling its entrepreneurial spirit and potential for innovation and growth.

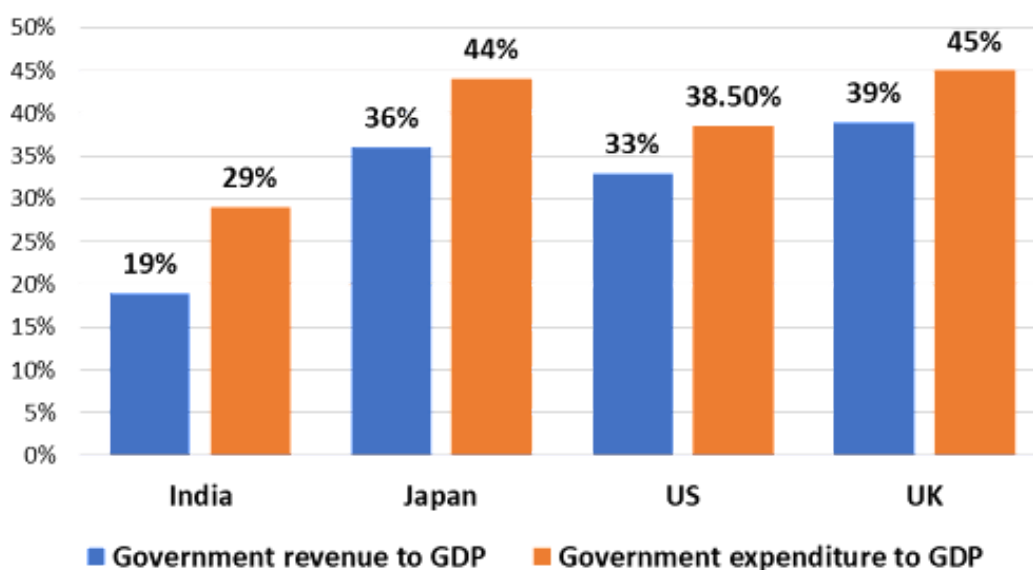
India's economic resilience is evident in its ability to bounce back strongly from the challenges posed by the COVID-19 pandemic. The country's financial sector remains stable, supported by a robust banking system and effective monetary policy aimed at ensuring price stability. Furthermore, India's external sector is characterized by stability, with forex reserves sufficient to cover imports and manage external debt. The country's public debt profile is stable, with low currency and interest rate risks. Moreover, India exhibits a strong position in gross capital formation, investment-to-GDP ratio, and savings-to-GDP ratio. These factors contribute to the sustainability of government debt.

India's role in the global economy is on an upward trajectory. The IMF predicts that India's share in world GDP will increase from 7.2% in 2022 to 8.6% in 2028. Similarly, India's share in global exports is expected to rise from 2.2% in 2021 to 4.5% in 2030, as projected by Morgan Stanley. Urbanization, industrialization, and manufacturing are critical engines of growth for India, and these sectors still hold significant untapped potential.

Fiscal position (2022)



Fiscal position (2022)



The country's increasing role in the global value chains (GVCs) is another promising aspect of India's economic potential. Currently, clean energy supply chains are heavily concentrated with China dominating the sector. To diversify these supply chains, India has prioritized the clean energy sector under its G20 presidency. The Production Linked Incentive (PLI) schemes play a key role in attracting investments and diversifying global supply chains. Initiatives such as the Green Hydrogen Mission, Advanced Cell -

Manufacturing, Carbon Capture, Utilization, and Storage (CCUS), and Small Modular Reactors (SMRs) offer emerging areas for significant investments.

India also recognizes the need for a sustainable economic trajectory. The country has pledged to achieve net-zero emissions by 2070 and has made significant investments in renewable energy, aiming to fulfill 50% of its energy requirements through renewable sources by 2030. India has also committed to -

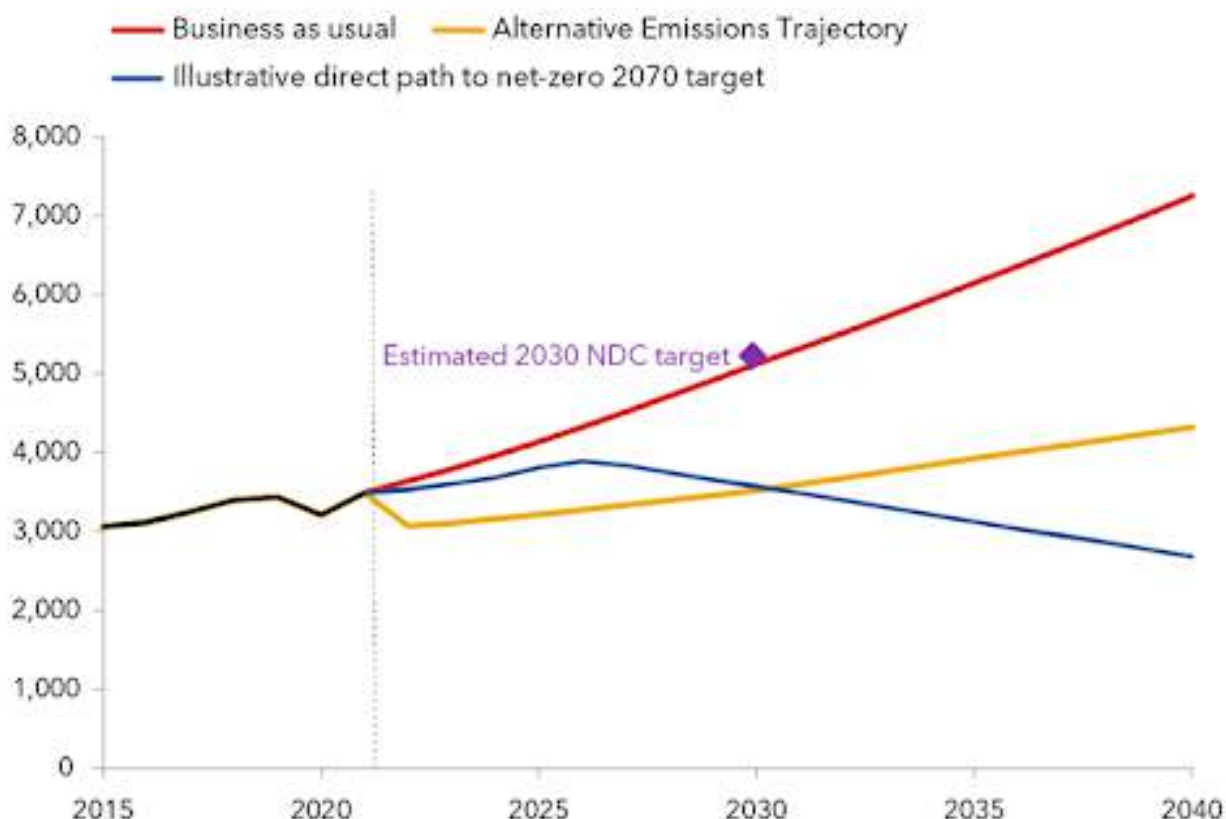
reducing carbon emissions by one billion tonnes and achieving a 500 kW non-fossil energy capacity during the same timeframe. To accomplish these ambitious

Bridging India's development deficit and vulnerabilities is crucial for its sustainable growth. Currently, India's per-capita GDP stands at only one-fifth of the global average

Transition path

Upfront action could accelerate the transition to net zero.

(Indian GHG emissions, metric tons of CO₂e per year)



Source: IMF Staff using the IMF-ENV model.

Note: NDC target for India is a 45% reduction in emissions intensity of GDP (ceiling) by 2030. Target is estimated using historical emissions data and GDP growth projections and is met in baseline. Net-zero target for 2070 is declaration / pledge (illustrative linear pathway shown). Alternative emissions trajectory is a reduction equivalent to a \$25 carbon price in 2030.

NDC = Nationally determined contribution.

IMF

objectives, collaboration among governments, businesses, investors, states, and cities is paramount. Energy security is of utmost importance, and Chief Economic Advisor V Anantha Nageswaran highlights it as the "single-most important worry" for maintaining progress. While India cannot abandon fossil fuels entirely, it aims to balance the share of fossil and non-fossil fuels in the energy mix by 2030.

highlighting the need for economic upliftment. Similarly, per-capita energy consumption is one-third of the global average, indicating the lack of access to modern energy sources for a significant portion of the population. Addressing these gaps requires significant investments in sectors such as health, education, and skill development to improve the employability of the workforce and enhance overall human development.

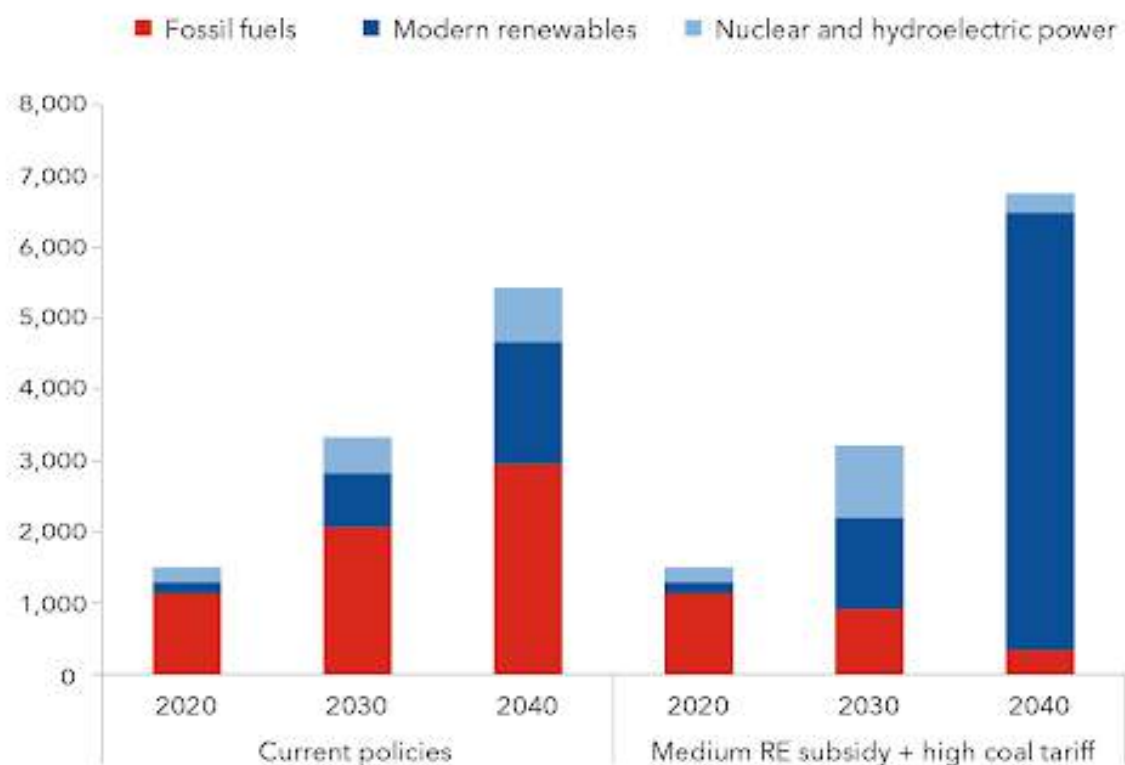
An important aspect of India's developmental challenges is the "Appalachia problem" present in the Indian context. Fossil fuel resources are primarily concentrated in around 120 districts out of the over 700 districts in the country. Unfortunately, these districts also face high poverty rates, leading to a complex situation where economic development and environmental sustainability need to be balanced. Over 20 million people are employed in the fossil fuel industries, and any transition to a sustainable future must ensure the protection of their livelihoods and provide alternative employment opportunities. India's vulnerability to climate change adds

another layer of complexity to its development efforts. The country is among the most vulnerable nations globally, facing significant risks from climate-related disasters. Ranked 29th out of 191 countries in terms of disaster risk levels, India grapples with the frequent occurrence of extreme hydro-meteorological events, including floods, droughts, and cyclones. These events have devastating consequences for communities, infrastructure, and the economy. The districts highly vulnerable to such disasters are home to around 80% of the country's population, making it imperative to invest in effective disaster response and recovery mechanisms.

Electricity mix

Renewable subsidies and coal tariffs can help cut emissions.

(electricity generation by source, terawatt hours)



Source: IMF Staff using the IMF-ENV model.

Note: Current policies is the estimated electricity mix under existing policies, historical emissions, and GDP growth projections from IMF WEO. Medium RE subsidy + high coal tariff is a renewable subsidy combined with a higher feed-in tariff for coal where emission levels are equivalent to a \$25 carbon price in 2030.

IMF

However, allocating resources for disaster management poses challenges as it reduces the budget available for other capital expenditure investments. The need for funds to address immediate disaster-related concerns can potentially divert resources from critical developmental areas. Therefore, a careful balance must be struck to ensure sufficient investments in disaster response while also supporting long-term sustainable development.

However, India is proactively addressing these challenges. The CD India Disclosure Report 2022 indicates that Indian enterprises are increasingly aware of climate change risks and their potential impacts on business. Environmental disclosures related to climate change, water security, and forests have increased by 40%. Businesses are setting goals, intensifying board-level monitoring of environmental challenges, and investing in renewable energy. The report highlights efforts to reduce over one million tonnes of CO₂ equivalent biogenic emissions and identifies potential opportunities worth Rs 31,000 billion. As India transitions to a more environmentally conscious nation, the cost of climate-related risks is expected to be around Rs 2,842 billion.

Indian cities like Mumbai are gaining recognition for their climate action leadership, further reinforcing the country's commitment to combat climate change. Companies are adopting carbon pricing and science-based targets to mitigate financial, operational, and reputational risks associated with climate change. Corporate risk assessments and water security targets are also being implemented to reduce environmental impact. To expedite progress, India should embrace circular economy practices and integrate sustainable behaviors into corporate governance frameworks.

India's robust and resilient macroeconomy, coupled with its economic potential, positions the country as one of the fastest-growing economies in the world. With its demographic dividend, resilience in the face of challenges, and increasing participation in the global economy, India is poised for significant growth. Additionally, India's commitment to sustainability, exemplified by efforts to reduce carbon emissions, embrace renewable energy, and address climate change risks, showcases its dedication to creating a sustainable and prosperous future. By bridging developmental gaps and vulnerabilities, India can ensure inclusive growth and uplift millions out of poverty while effectively managing climate-related risks.

In many industries, achieving complete decarbonization would require implementing even costlier measures. Sectors such as industry and transportation would need to utilize nascent technologies that come with a hefty price tag to achieve net-zero emissions. These technologies include green hydrogen for carbon-free steel and fertilizer production, renewable high-temperature heat for sectors like chemicals and cement, and green fuels for aviation and shipping. Although costs are expected to decrease as these technologies mature and achieve economies of scale, it is important to anticipate their relatively high costs for the time being.

Japan pledged in October 2020 to achieve complete carbon neutrality by 2050 and announced a target to cut greenhouse gas emissions by 46% by 2030 compared to 2013 levels. In September 2020, President Xi Jinping of China declared that the country aims to peak CO₂ emissions before 2030 and achieve carbon neutrality before 2060. Similarly, the European Union adopted the European Climate Law

in June 2021, setting a goal of reaching net-zero greenhouse gas emissions in the EU by 2050, with an interim target of reducing emissions by at least 55% by 2030 compared to 1990 levels.

Elisabeth Borne, the French Prime Minister, recently unveiled the new measures. France now wants to cut its emissions from 408 million tonnes of CO₂ equivalent (mtCO₂e) in 2022 to 270 mtCO₂e in 2030 in order to comply with the most recent EU guidelines. Germany and Italy participated in the recent EU decision to pass a regulation that basically bans the sale of new vehicles with combustion engines beginning in 2035. Germany was successful in securing a last-minute accommodation to maintain the possibility of e-fuel automobiles.

The global transition towards decarbonization is a significant undertaking with far-reaching implications for macroeconomics and finance. While it presents challenges, it also offers opportunities for technological advancements, job creation, and long-term economic growth. The evolving financial landscape, driven by the rise of green finance, carbon pricing mechanisms, and investor demand for sustainability, emphasizes the importance of proactive measures such as policy support, investment in research and development, and collaboration among governments, businesses, and financial institutions. These collective efforts are crucial in steering towards a sustainable and prosperous future.

Conclusion

Decarbonization represents a global transition with profound macro-economic and financial implications. While it presents challenges for fossil fuel-dependent industries, it also offers opportunities for technological

advancements, the creation of green jobs, and sustainable economic growth. The evolving financial landscape, including carbon pricing mechanisms and investor demand for sustainable investments, reflects the growing significance of decarbonization.

Governments, corporations, and financial institutions must collaborate and proactively support the transition through policy measures, research and development investments, and collective efforts to ensure a sustainable and prosperous future.

THE RIPPLE EFFECT OF THE RUSSIAN-UKRAINE CRISIS ON FOOD SECURITY AND GLOBAL SUPPLY CHAINS

Stuti Sharma

Research Intern at Observer Research Foundation



Introduction

Global Food supply chains continue to be in a non-monotonic state since the dramatic escalation in the Russian-Ukrainian crisis signalling a full-scale war. Conflicted entails direct human suffering and has significant socioeconomic costs it can reduce individuals' and families' access to food. Hunger is becoming more of a problem proportionally to the degree of the vulnerability of highly fragile conflict-prone zones. Conflicts disrupt food production by physically destroying and plundering crops and livestock, harvests, and food reserves; they prevent and discourage farming; they disrupt food transportation systems;

They farm assets and capital; they conscript or entice young men to fight, taking them away from their farm work;

In the Middle East and North Africa, Yemen, Libya, and Lebanon import a large portion of their wheat from Ukraine, while Egypt imports more than half of its wheat from either Russia or Ukraine. Indonesia and Bangladesh, both in South and Southeast Asia, are significantly reliant on wheat from the region. Egypt, Turkey, Bangladesh, Indonesia, and Pakistan were the top importers of Ukrainian wheat in 2020, while Russia supplies a substantial portion of wheat to numerous Sub-Saharan African nations, including Nigeria and Sudan.

The Ukrainian land is one of the most fertile lands on earth and is known as the breadbasket of Europe. It is a major exporter of corn, barley, and rye, but it is its wheat that has the most impact on global food security. Ukraine exported

Food Index Nears Record

Gauge of food commodity prices reaches highest since 2011

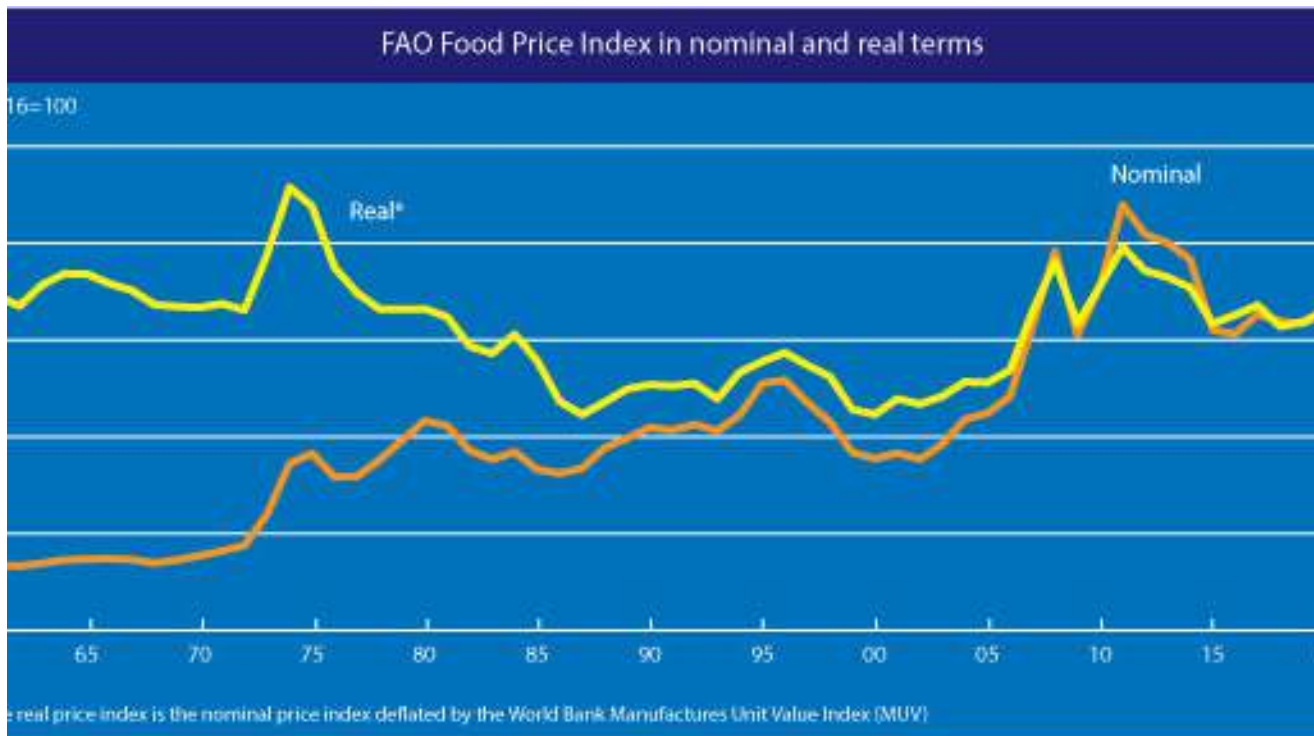


around 18 million metric tonnes of wheat in 2020, out of a total harvest of 24 million metric tonnes, making it the fifth-largest exporter in the world. In addition to supplying food grains to much of Europe Ukraine is also a major exporter of corn to China where it replaced the US as its prime supplier in 2021. With food prices rising to a level last experienced in 2011 due to inflation induced by the global palm oil shortage and the COVID-19 pandemic this crisis could worsen the trend.

Factors affecting the rise in food price

The agricultural business in Ukraine is strongly reliant on rain, but rainfall has been inconsistent this year, falling by 8% below yearly averages the reason for this inconsistency was attributed to climate change by the country's Ministry of Environmental Protection. These unfavourable circumstances have a significant impact. According to the Ministry of Environmental Protection and Natural Resources of Ukraine, the country lost 570,000 hectares of winter crops as a result of extended droughts and extremely harsh spring frosts. Deficiencies in the spring and summer resulted in significant

losses, including the loss of 200,000 hectares of corn and poorer crop yields across the country. Due to reduced crops induced by extreme drought conditions, exports have dropped dramatically year over year this season. Grain shipments were reported to be down 16 per cent in December 2020 compared to the same month the previous year. Along with its internal geo-climatic conditions, there is a global increase in energy prices the stakes are high as major economies are still dependent on fossil fuels, Central to the discussion is Russia's position as the world's largest natural gas exporter and second-largest oil exporter. Fertiliser costs have risen dramatically as a result of high natural gas prices, which have prompted some European facilities to suspend or reduce operations. Russia is also the world's largest fertiliser exporter, and pre-conflict fertiliser price hikes have already contributed to the rise in food costs, according to Shirley Mustafa, an economist at the UN Food and Agriculture Organization



(FAO). Further disruptions in fertiliser production or exports will harm European agriculture, potentially leading to even higher global food prices. All of this contributes to growing fertiliser costs for farmers, who are reducing their fertiliser use. This might lead to poorer crop yields and higher food costs around the world. According to a United Nations indicator, food prices are already at their highest in a decade.

Sanctions on Russia and global food Supply chains

The United States and its European allies have announced penalties against Russia, but none of them includes a ban on food and agricultural imports. Global grain prices have continued to rise despite this. Traders are bracing for the fallout from a growing conflict between Russia and Ukraine. As a result, wheat futures prices at the Chicago Board of Trade, the global benchmark, jumped 6% this week to \$9.34 per bushel, the highest level in nine years. Wheat futures have risen 10% since the beginning of the year. Additionally, feed grain prices are influenced by China's

trading relations with Russia. China imports huge amounts of feed grains (corn, barley, and sorghum) from international markets, virtually entirely from Russia and Ukraine. China could possibly increase its purchases of Russian/Ukrainian wheat for animal feed. worldwide corn/barley might be replaced, and global purchasers could buy from origins that formerly served China's needs.

The impact on corn and barley would be minimal in this case. If China, on the other hand, is unable to purchase from Russia/Ukraine, harvested volumes in Russia must be stored, and China

Purchasing from worldwide markets would result in a second global shortage, and rising prices, though not as much. Similar to wheat. In scenario B, we expect corn and barley prices to climb by 30%.

Global vegetable oil markets are likewise quite tight, and while sunflower oil shipments aren't particularly large, Russia and Ukraine still account for 15% of total global vegetable oil exports. China and India are the region's top importers, raising

World Wheat Exports



the question of whether China can import from there. If China is unable to import, global markets will be forced to reduce demand by raising prices dramatically. We anticipate a 20% increase in vegetable consumption.

Conclusion and Further projections

Shocks to global agriculture markets can have far-reaching consequences. Reduced output from major producers—Australia, Burma, Russia, and others—led to price hikes and protests in nations ranging from Haiti to Cote d'Ivoire to over 40 others in 2007 and 2008. Reduced global stockpiles of wheat, other grains, and oilseeds from Ukraine and Russia today might intensify continuing problems in Afghanistan, Syria, Ethiopia, and other hotspots, as well as exacerbate instability in Egypt, Lebanon, and Syria. Nearly half of Ukraine's major wheat consumers are already experiencing extreme food shortages; clients in Asia and Africa are particularly vulnerable to a reduction in Russian wheat supplies.

To the extent possible, keeping Ukraine's and Russia's supplies online should be a key priority. Western sanctions on Russia's agriculture industry should be avoided,

even if just symbolically; with China promising to buy Russia's barley and wheat, any sanctions imposed on Russia's agriculture sector would be ineffective. Proactive promises to the free flow of agricultural items, similar to healthcare equipment at the start of the epidemic, could help mitigate the conflict's worst effects.

BIBLIOGRAPHY

https://reliefweb.int/sites/reliefweb.int/files/resources/a-i5521e_0.pdf

Smith, A. (2022, January 24). *A Russia-Ukraine War Could Send Ripples Across Africa and Asia*. *Foreign Policy*.

<https://foreignpolicy.com/2022/01/22/russia-ukraine-war-grain-exports-africa-asia/>

Global food prices rise in January. (2022, March 2). PRD-Newsroom.

<https://www.fao.org/newsroom/detail/global-food-prices-rise-in-january-2022/en>

D'Enghien, P. B. (2018, April 5). *Palm Oil – Essential for Food Security*. *The Oil Palm*.

<http://theoilpalm.org/palm-oil-essential-for-food-security/>

Dickinson, P. (2021, January 12). *Climate change may prevent Ukraine from becoming an agricultural superpower*. *Atlantic Council*.

<https://www.atlanticcouncil.org/blogs/ukrainealert/climate-change-may-prevent-ukraine-from-becoming-an-agricultural-superpower/>

Bloomberg - *Are you a robot?* (2021). Bloomberg.

<https://www.bloomberg.com/tosv2.html?vid=&uuid=db75de22-9890-11ec-8fa5-6b5644686575&url=L25ld3MvYXJ0aWNsZXRMvMjAyMi0wMi0yMy9ydXNzaWEtdWtyYWluZS10ZW5zaW9ucy1zcHVyLWZlYXJzLW9mLWZlcnRpbGl6ZXItc2hvcnRhZ2VzLWZvb2QtcHJpY2UtaGlzZXM=>

<https://www.fao.org/3/ca9509en/ca9509en.pdf>

Press Trust of India. (2022, February 25). *New Western sanctions to break Russian supply chains, President Putin told*. *Www.Business-Standard.Com*.

https://www.business-standard.com/article/international/new-western-sanctions-to-break-russian-supply-chains-president-putin-told-122022500969_1.html

A Political Economy of the Food Riot on JSTOR. (2021). *The Political Economy of Food*.

<https://www.jstor.org/stable/40647787>

FUTURE OF GOVERNMENTS E-COMMERCE PLATFORM (ONDC)

Kushagra Baranwal
Shri Ram College Of Commerce



Introduction

The Open Network for Digital Commerce (ONDC) is an Indian government program that assists in realising the potential of e-commerce and offers further assistance to the small and Medium-sized Enterprises (SME) sector. By establishing a level playing field for small and medium-sized firms, as well as micro-entrepreneurs.

In India, more than 12 million vendors make a living by selling or retailing items and services. However, just 15,000 of these vendors have enabled e-commerce (0.125% of the total). The majority of merchants, particularly those from small towns and rural regions, have been unable to sell online.

ONDC understands the unique opportunity to enhance e-commerce penetration in India

from the current 4.3% to its full potential. Our objective is to drastically enhance e-commerce penetration in the nation by allowing the inclusion of all kinds and sizes of sellers on a population scale

To overcome this, ONDC's goal is to revolutionize e-commerce by democratizing digital commerce and replacing the platform-centric paradigm with an open network that enables cross-platform and cross-application interaction and trade.

According to Avendus Capital, the Indian e-commerce business was valued at 28,500 crores (\$6.3 billion) in 2011, with online travel accounting for a significant portion of this market (87%). The e-commerce sector in India was valued at \$24 billion in 2017, making it the fastest-growing

ROLE OF OTHER E-COMMERCE PLATFORMS BEFORE ONDC:



industry (2) . In 2018, the e-commerce market reached \$38.5 billion, and one out of every three Indians is expected to shop through smartphones, with online merchants delivering to 20,000 of India's total 154,000 pin codes. However, the Indian e-commerce industry was platform-centric, which meant that both the buyer and seller had to interact on the same platform or application, making it difficult to compare comparable things based on vendor price, shipping costs, taxes, and other factors

The Indian e-commerce industry is expected to grow by 21.5% by 2022, reaching US\$ 74.8 billion. By 2030, India's e-commerce business is anticipated to be worth US\$ 350 billion.

CAN THE CONTINUED SUCCESS OF AMAZON AND FLIPKART BE THREATENED?

If you can't beat 'em, join 'em' on this exorbitant notion amazon recently joined ONDC as a logistic partner. ONDC could become as expansive as some national digital public network initiatives, such as GSTN, UPI, or the CoWIN app, which

' would present its own unique challenges. "Ecommerce is a complex business where each business has its own supply chain and processes, and standardization will be difficult for the government," said Kapil Makhija, CEO of Unicommerce, which has been working with sellers from tier-2 and tier-3 areas.

It will be difficult for leading e-commerce businesses to reconfigure their systems, necessitating a complete system overhaul and the loss of benefits such as control over the user experience and customer behaviour analytics. Better government regulation of what can be bought and sold is advantageous. In UPI, for instance, a new regulatory mandate imposed a 40% market share cap on all service providers, thereby retarding the growth of market leader PhonePe

IMPACT OF ONDC ON THE INDIAN ECONOMY

The introduction of ONDC will encourage small businesses to go into the realm of ecommerce. As a result of the Open Network for Digital Commerce, separate buyer-centric and seller-centric apps will



be introduced, which will benefit anyone involved in ecommerce. New applications that may reach the market may help buyers and sellers resolve additional difficulties. Buyers may gain by shopping at the most convenient or least costly store in town, while merchants may benefit from logistical solutions.

ONDC is projected to give the following benefits:

- Price research and comparison.
- Local retail business expansion.
- Formalization and democratization.
- A wide range of options.
- Supplementary services.
- Outsourcing services, Rational business processes and opportunities as a result of the open platform.
- Reduction in monopolistic domination.

Conclusion

The Open Network for Digital Commerce (ONDC) is poised to revolutionise India's

ecommerce sector by democratising digital commerce and assisting small and medium-sized businesses. With the goal of increasing e-commerce penetration in the nation, ONDC will allow cross-platform and cross-application engagement and trade, creating a fair playing field for sellers of all sizes. ONDC is predicted to have a substantial influence on the Indian economy, including advantages such as pricing research and comparison, local retail company development, formalisation and democratisation, a broad choice of alternatives, supplemental services, outsourced services, and rational business procedures. While ONDC may provide problems for top e-commerce enterprises, it is a positive move towards the growth and development of India's e-commerce sector.



Figure 7: Components of open network enabled by ONDC

Bibliography

- Kapoor, B. S. (2022, November 19). ONDC: Reimagining the future of digital commerce | Retail News India. Apparel Resources
<https://apparelresources.com/business-news/retail/ondc-reimagining-future-digital-commerce/>
- Salkever, A., Amla, I., & Wadhwa, V. (2022, August 5). Why India could single-handedly shape the future of e-commerce this summer. Fortune.
<https://fortune.com/2022/08/02/why-india-could-single-handedly-shape-the-future-of-e-commerce-this-summer-vivek-wadhwa-alex-salkever/>
- Sharma, N. (2022, November 12). ONDC the game changer for Indian e-commerce. Times of India Blog
<https://timesofindia.indiatimes.com/blogs/voices/ondc-the-game-changer-for-indian-e-commerce/>
- Bhargava, A., & Bhati, M. (2023). ONDC and digital commerce in India: what companies need to know. Lexology.
<https://www.lexology.com/commentary/corporate-commercial/india/phoenix-legal/ondc-and-digital-commerce-in-india-what-companies-need-to-know>
- ENS Economic Bureau. (2023, February 24). Amazon joins ONDC, the e-commerce network that plans to challenge the giant itself. The Indian Express.
<https://indianexpress.com/article/business/companies/amazon-joins-ondc-the-e-commerce-network-that-plans-to-challenge-the-giant-itself-8465418/>
- India: e-commerce market size 2030 | Statista. (2023, January 5). Statista.
<https://www.statista.com/statistics/792047/india-e-commerce-market-size/>
- Ondc, T. (2023). All About Open Network for Digital Commerce. ONDC | Open Network for Digital Commerce
<https://ondc.org/about-ondc/>
- Wikipedia contributors. (2023a). E-commerce in India. Wikipedia
https://en.wikipedia.org/wiki/E-commerce_in_India

HOW AI POWERED CHATBOTS WILL AFFECT SEARCH BUSINESS

Shiva Yadav

Shri Ram College Of Commerce



Abstract

AI-powered chatbots are changing the way people seek information on the internet. This study examines the disruptive impact of AI-powered chatbots on traditional search engines, particularly on their search advertising revenue. By leveraging secondary data from reliable sources, this paper uncovers that a significant portion of a search engine's revenue comes from targeted advertising, elucidating its functioning. Furthermore, it explains the technological underpinnings of AI-powered chatbots, which possess the potential to upend the industry. Tracing the evolution of chatbot technology from the 1960s ELIZA to the recent launch of ChatGPT in November 2022, the paper offers readers valuable context regarding the recent developments in the past six months, such as the partnership between Microsoft and

OpenAI and the forced launch of Google Bard. In its findings, this research identifies potential challenges that chatbots may pose for search engine companies in the future and proposes solutions for one prominent issue: the monetization of chatbots. These solutions can be considered by search engine companies, while readers gain insights into the technology behind AI-powered chatbots and the contextual developments that have occurred, are transpiring, and will transpire in this influential sector of the digital economy.

Literature Review

Chatbots are computer programmes that can interact with humans using natural language, either through text or speech.

They have a long history, dating back to the 1950s, when Alan Turing proposed the Turing test to measure a machine's intelligence. Since then, chatbots have evolved from simple rule-based systems to more sophisticated data-driven systems that use machine learning and deep learning techniques to learn from large amounts of data. Chatbots are computer programmes that can interact with humans using natural language, either through text or speech. They have a long history, dating back to the 1950s, when Alan Turing proposed the Turing test to measure a machine's intelligence. Since then, chatbots have evolved from simple rule-based systems to more sophisticated data-driven systems that use machine learning and deep learning techniques to learn from large amounts of data. Chatbots have various applications in different domains, such as education, business and e-commerce, health, and entertainment. Chatbots can provide information, guidance, support, feedback, entertainment, and social interaction to users.

Search engines are the primary source of information for many users, but after the launch of ChatGPT, conversational AI chatbots became popular among the masses, leading to the introduction of search engine-integrated chatbots from Bing and Google. These chatbots almost solved the limited knowledge issue of ChatGPT by connecting it to the internet. However, this development created a problem for these companies. Not only did it start to eat into their advertising revenue, but the companies are also still confused about how to monetize it.

Therefore, it is important to understand the impact of AI-powered chatbots on the search engine business and how search engine companies can adapt and innovate in this changing landscape. In this paper,

we will provide background on what is happening after the launch of ChatGPT, identify some of the problems that these AI-powered chatbots will create for the search engine companies, and propose some solutions for the most prominent problem, which is how these companies can monetize these search engine-integrated chatbots. We will also discuss some of the future directions and implications of this research.

Introduction

Have you ever imagined what your life would be like without search engines? It's hard to fathom because search engines have become such a ubiquitous part of our lives. While the human mind is undoubtedly a vast repository of knowledge, it cannot possibly know everything. That's where search engines like Google, Bing, Yahoo, and others come into play. A search engine is a software application that users can access through a web browser. It enables users to enter their queries in the omnibox or search bar. When a user enters a query using keywords or phrases, the search engine dispatches a team of robots called crawlers or spiders. These crawlers find new and updated content on the internet by following links from a huge database of information. The search engine then organises and stores the content and displays a ranked list of results that best match the user's query. Currently, users have the ability to freely access prominent search engines available on the market. Despite this, these companies generate billions of dollars in revenue through the display of targeted advertisements. This is accomplished by leveraging the data collected from users and showing ads most suited to them.

Now, all of this was going on before the advent of something that has the potential to change or will be changing the entire search business by the time you are reading this: "AI-Powered ChatBots". These chatbots are built using deep learning algorithms and machine learning techniques. Unlike traditional rule-based chatbots, they possess the ability to comprehend the context and intent of a question, enabling them to offer more natural and conversational responses to user queries. As a result, these chatbots can change the way users access information online. However, this transformative capability can also pose a significant challenge to search engine companies by potentially impacting their advertising revenue. This can have a disastrous impact on the search advertising revenue of search engine companies

Therefore, it is important to understand how chatbots affect the search engine business. In this paper, we aim to address the following research questions:

- What portion of the total revenue generated by popular search engine companies is derived from targeted advertising? Their advertising model, and how does targeted advertising function? Why is targeted advertising generally disliked by the majority of people?
- How have AI-powered chatbots evolved over time? What is the current state of chatbot technology, particularly following the launch of chatGPT?
- What is the technology behind the AI-powered chatbot?
- What are the problems that AI-powered chatbots have created for search engine companies?
- What are some potential solutions to address the prominent problem of monetizing search engine-integrated chatbots to ensure sustainable revenue growth?











To answer these questions, we will conduct a literature review of an existing study titled "Chatbots: History, Technology, and Applications" by Eleni Adamopoulou and Lefteris Moussiades, published in the Elsevier in 2020. We will supplement our findings with secondary data to provide relevant statistics and information that substantiate our arguments. The paper will encompass contextual details, such as the advertising model, underlying technology, and current developments in the chatbot domain, making it accessible even to individuals new to the subject. At last, the paper proposes ideas and suggestions that can be considered by the search engine companies in order to monetize these integrated chatbots early.

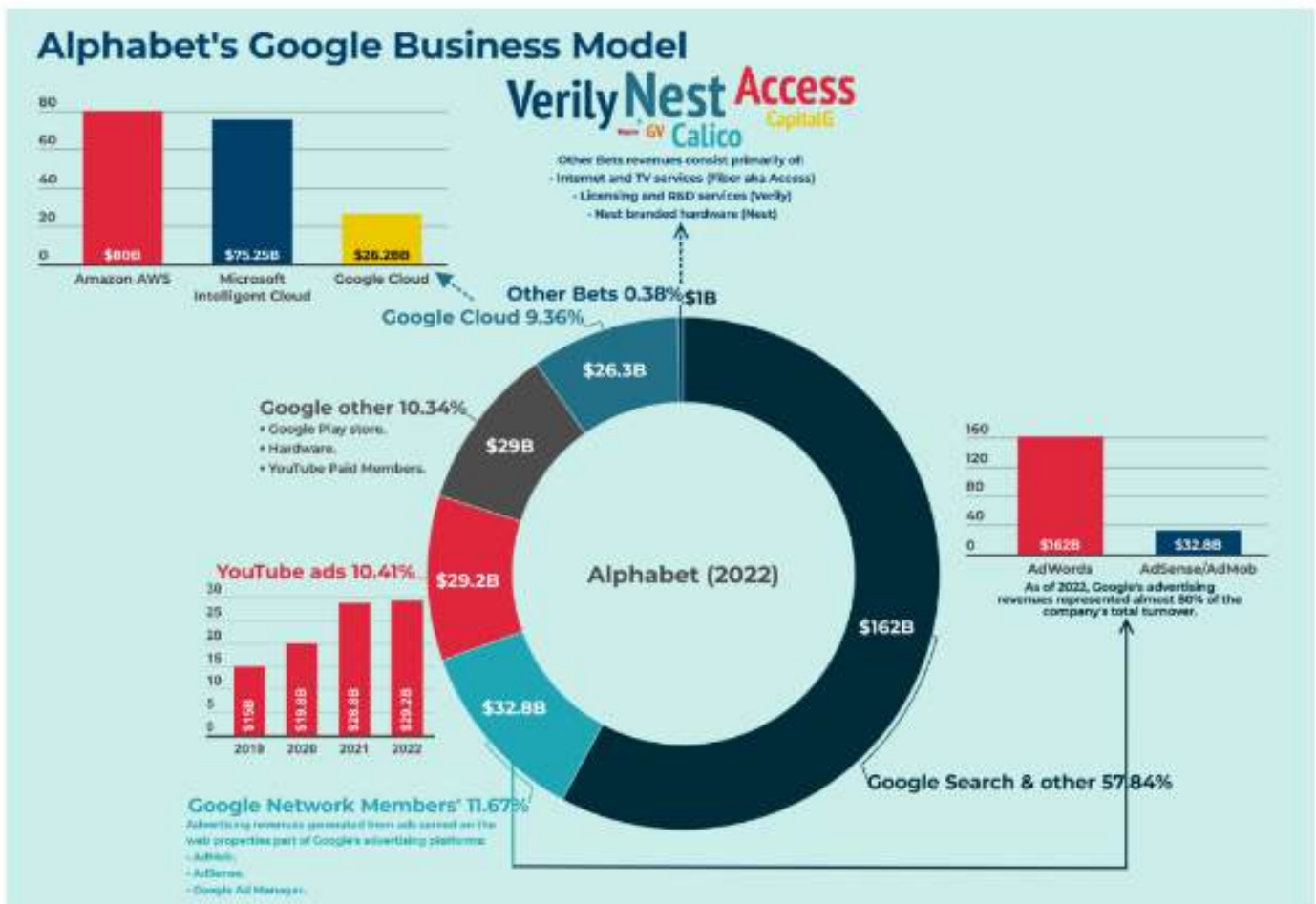
Search Advertising Business Model

As of May 2023, Google has cemented its position as the undisputed leader of the global search market, with a staggering market share of 93.12% across all the platforms. Other major search engines such as Bing and Yahoo hold 2.77% and 1.11% of the market share, respectively.

The parent company of Google, Alphabet, is also one of the largest companies in the world, currently ranking fourth by market capitalization. According to Investopedia and macrotrends, in the 2022 fiscal year ending December 31st, 2022, Alphabet reported a whopping revenue of \$282.84 billion, with a net income of \$59.97 billion.



Rank	Name	Market Cap	Price	Today	Price (30 days)	Country
1	 Apple AAPL	\$2.824 T	\$179.58	↓ 0.76%		USA
2	 Microsoft MSFT	\$2.497 T	\$335.94	↑ 0.16%		USA
3	 Saudi Aramco 2222.SR	\$2.103 T	\$8.70	↑ 1.24%		S. Arabia
4	 Alphabet (Google) GOOG	\$1.603 T	\$126.63	↑ 1.12%		USA
5	 Amazon AMZN	\$1.285 T	\$125.30	↑ 0.85%		USA



How Search Advertising generates revenue?

Business Model of Search Engines

Now, you may wonder how these search engines make money despite most of their services being free, including the search bar.

When it comes to search engines, Google is undoubtedly the king of the hill. To understand how search engines make money, we can look at the revenue of Alphabet, Google's Parent Company. Alphabet has three major sources of revenue, namely, Google, Google Cloud, and Other Bets, which include companies such as Verily, Waymo, and DeepMind etc.

Google's primary source of revenue stems from advertising, which is prominently displayed when users search for specific keywords or phrases. In order to facilitate this process, Google established the Google Network Members program, catering to both advertisers seeking to partner with Google to display their ads, and publishers or content creators looking to monetize their website traffic. AdWords and AdSense are integral components of Google's comprehensive advertising program.

AdWords caters to advertisers who wish to showcase their ads within Google's search results and other affiliated properties. Advertisers have the option to pay Google based on either the cost per thousand impressions (CPM) or the cost per click (CPC) model, depending on the type of ad and advertisers' preferences. Under the CPM model, advertisers pay Google when their ad is viewed one thousand times on a publisher's website. Conversely, the CPC model requires payment only when a user clicks on the ad. Advertisers are thus obligated to remunerate Google only once either of these criteria is met. Google subsequently distributes the earned revenue

to publishers and content creators across the Internet.

AdSense, on the other hand, functions as a revenue-sharing system. Here, Google collects funds from advertisers, retaining a certain percentage as its revenue and distributing a significant portion to publishers whose websites display the ads. Similar to AdWords, publishers can receive payment based on either the CPM or CPC model. The specific CPM and CPC rates may fluctuate depending on factors such as ad type, ad quality, and competition in the market.

Search Advertising Business Model

YouTube, as a subsidiary of Google, operates on a similar CPC or CPM model. However, instead of showcasing ads through banners, ads are displayed within videos created by content creators. To be eligible for YouTube ads, creators must join the YouTube Partner Program (YPP). Google earns a substantial \$162 billion from advertisers through AdWords, retaining approximately \$32.8 billion as AdSense revenue and allotting a significant share to website publishers (operating costs). YouTube ads contribute 10.41% of Google's total revenue, amounting to \$29.2 billion. The colossal search business conducted via Google's search bar alone generates a staggering 69.51% of the company's overall revenue. This highlights the immense importance of the search function for the world's largest search engine. Overall, an impressive 79.92% of Google's total revenue is derived from advertising shown on search results. Google Cloud and Other Bets (including Google other revenues) contribute 9.36% and 10.72% of Alphabet's total revenue, respectively.

Most major search engines in the market follow a similar advertising revenue model based on cost per click (CPC) and cost per thousand impressions (CPM).

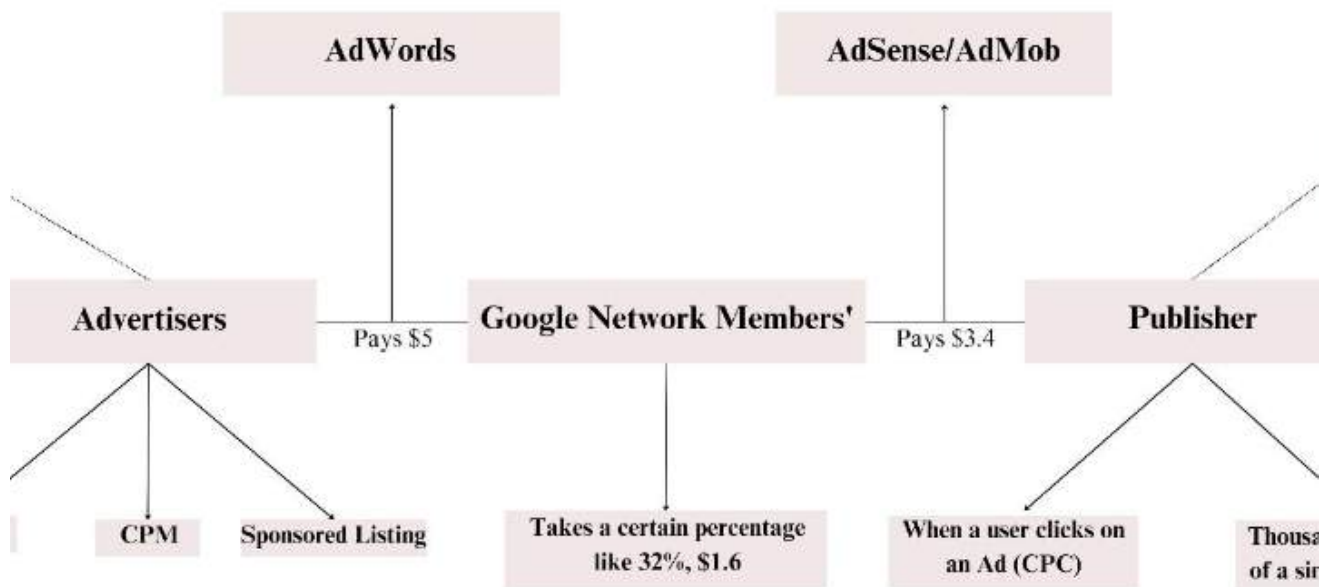


Fig. Google's Revenue Model through advertising on search results

Bing, which is the second most widely used search engine globally, generated a substantial revenue of \$11.59 billion from search advertising in FY2022. Like Google, Bing displays advertisements on its web pages and other Microsoft platforms such as CSN, Microsoft Edge's New tab, and Windows Start Menu. Bing also provides its own online advertising platform called Microsoft Advertising, which offers CPC advertising not only on Bing but also on search engines like Yahoo! and DuckDuckGo. Additionally, Bing operates the Microsoft Advertising Network, a network of third-party websites and apps that display ads from Microsoft Advertising. These affiliates share a portion of the ad revenue with Microsoft. The Microsoft Advertising Network allows advertisers to target a wider audience and expand their business by showcasing ads on popular sites where users spend time, such as MSN, Microsoft Edge, Outlook, CBS Sports, Fox News, and more. It's important to note that Microsoft does not offer the CPM model for its Microsoft Search Network (Bing), except for some advertising products like Microsoft Audience Ads and Microsoft Advertising Network.

Up to 80-90% of the total revenue generated by these search engines stems from advertising within search results. Despite their primary purpose of facilitating easy access to information on the World Wide Web, these search engines have ingeniously found a way to monetize their services by incorporating ads while keeping the platform free for users. Still, the magnitude of advertising revenue is reaching billions of dollars. This underscores the immense reliance of these billion-dollar companies on search functionality. It is common knowledge that corporations seeking to promote their products and services bid for keywords to ensure that their ads appear whenever users search with those specific terms. Now, one may wonder why these corporations are willing to invest such substantial amounts in search engine advertising when they could do the advertising at a much lower cost through traditional media channels. The answer lies in the exponential growth of social media and faster internet speeds, which have generated a significant surge in traffic. As a result, these search engines have a massive user base, offering corporations greater visibility. However, what truly sets these

search engines apart is their ability to enhance the conversion rates of advertising campaigns through the implementation of targeted advertising techniques.

Targeted Advertising

Like Google, every other search engine like Yahoo!, Bing, Baidu etc. generates a significant portion of their total revenue from targeted advertising. Targeted advertising involves using customer data to segment audiences based on factors such as basic demographics, shopping interests, or browsing behaviour. Advertisements are then created that are tailored to each audience segment. The main objective of targeted advertising is to deliver relevant and useful ads to users. By tailoring ads to individual preferences and interests, advertisers can ensure maximum interaction, encouraging users to click on the ads and ultimately convert. This personalized approach also enhances the overall online experience for users, making their interactions with advertisements more meaningful and engaging.

Targeted Advertisement takes place in the following manner:

1. The process of targeted advertising begins with a user performing a search query on a search engine, where the algorithm determines the keywords and intent to generate relevant search results.
2. Advertisers participate in auctions by bidding on specific keywords or phrases related to their products or services, with higher bids increasing the chances of their ads being displayed on search results or websites.
3. The search engine evaluates the relevance of advertisers' ads based on factors like ad quality, keyword specificity, landing page experience, and expected click-through rate (CTR). On the basis of these factors a quality score is assigned to an ad. The quality score affects ad ranking and cost-per-click (CPC).

4. Search engines collect user data including search history, location, device, age, demographics, and cookies. This data is used to create user profiles, which are segmented based on interests, preferences, and characteristics.

5. Advertisers can define targeting parameters to match their ads with user profiles that meet specific criteria. This targeting helps narrow down the audience and ensures that the ads are displayed to interested users.

6. The final display of ads depends on factors such as the advertiser's bid, quality score, targeting parameters, and segmented user profiles. If an ad is relevant and useful to a user, it will be shown alongside search results or within the search engine's advertising network.

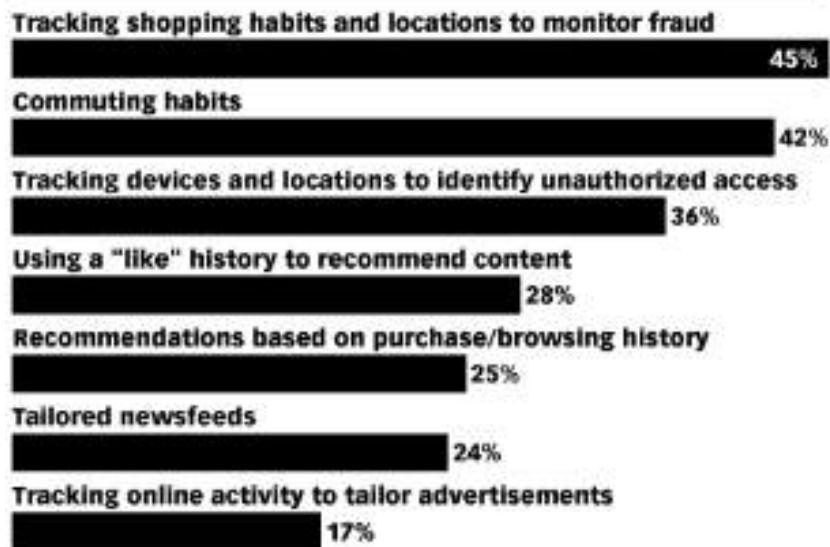
7. Search engines continuously track user interactions, such as ad clicks and conversions, to optimize future targeted advertising. This data is analysed to improve the efficiency and effectiveness of ad placements over time, resulting in more tailored and engaging experiences for users.

Targeted advertising heavily depends on the collection and analysis of user data. However, this practice raises concerns regarding user privacy, especially when individuals are unaware of how their data is being utilized and shared by advertisers and third-party websites. The lack of transparency surrounding data usage can leave users feeling uneasy or violated, as their personal information is used to deliver highly personalized ads.

Furthermore, there is a potential for targeted advertising to be employed in unethical or harmful ways. This includes instances of discrimination, where individuals may be subjected to biased advertisements based on their personal characteristics or preferences. Manipulation is another concern, as advertisers can exploit the gathered data to

Internet Users in the US and Europe* Who Believe that Select Personalization Methods Are Ethical, Dec 2018

% of respondents



Note: ages 18+; 48% of respondents believe that there are ethical ways in which a company can use their personal information/data; *France, Germany and UK

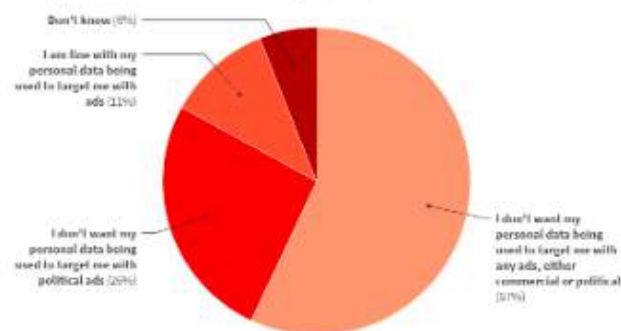
Source: RSA Security, "RSA Data Privacy & Security Survey 2019: The Growing Disconnect Between Consumers and Businesses," Feb 6, 2019

245437

www.eMarketer.com

MAJORITY DON'T WANT ANY PERSONALISED ADS

Percentage of social media users in France and Germany (sample size = 2,034)



Source: YouGov - Download Data - Embed

global witness

shape users' perceptions or behaviour, potentially influencing their decision-making processes. There is also a risk of data breach due to which many people do not prefer to share their data for personalised ads.

According to a YouGov survey conducted in France and Germany, a majority (57%) of people do not want to receive any targeted political or commercial ads, and a further

26% do not want to receive targeted political ads. Only 11% of respondents said that they were happy with their personal data being used to target them with ads.

In a 2019 survey conducted by network security firm RSA, it was revealed that a mere 17% of internet users in the United States and Europe considered it ethical to track their online activity for the sole purpose of personalizing advertisements.

Targeted advertising can also be frustrating for users because it increases the time it takes to find the information they are seeking. Users may have to scroll past multiple ads before finding the right website, and then be bombarded with more ads on the webpage. This can lead to a frustrating user experience.

Technology behind AI Powered chatbots

We have all interacted with chatbots at some point, but AI Powered Chatbots

stands out as a different kind of chatbot altogether. Unlike traditional chatbots, which generate pre-defined responses based on pattern matching and keyword recognition, AI powered chatbots utilise the vast data they were trained on to generate conversational responses. Additionally, Traditional chatbots require human intervention to add new rules or modify existing ones, making them inflexible . In contrast, AI Powered Chatbots can improve itself through a process called fine-tuning, which allows it to re-train on new data while retaining the knowledge learned during pre-training, kind of how our brain works. This enables these chatbots to leverage its pre-existing knowledge and adapt to new contexts without requiring a large amount of new training data.

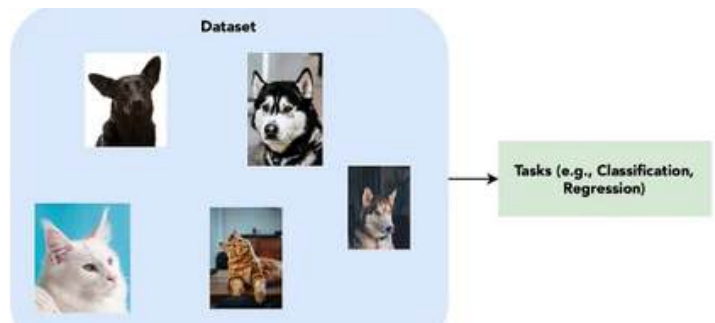
AI-powered chatbots have three main pillars: LLM, NLP, and APIs.

1. LLM: LLM stands for Large Language Models, which consist of Artificial Neural Networks (ANNs) that are trained on massive amounts of text data from sources such as books, articles, websites, and several other forms of written content. Utilising the power of the deep learning algorithms, the model can analyse the statistical relationships between words, phrases, and sentences through the training process, which will help it generate contextually relevant responses to prompts or queries.

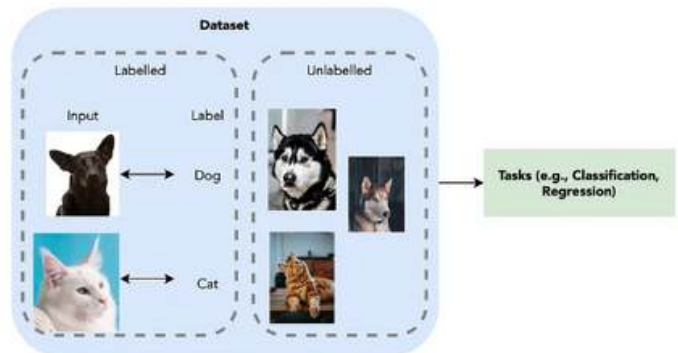
These chatbots are typically trained using the following techniques:

a. Self-Supervised Learning: This technique leverages a carefully defined pretext task designed to generate labels from the unlabelled data. In the early days of AI-powered chatbots, they were trained to predict the next word of the sentence

using a large corpus of text data, such as books, articles, or dialogues. This is an example of self-supervised learning, where the model learns from the text itself without any human labels or feedback.

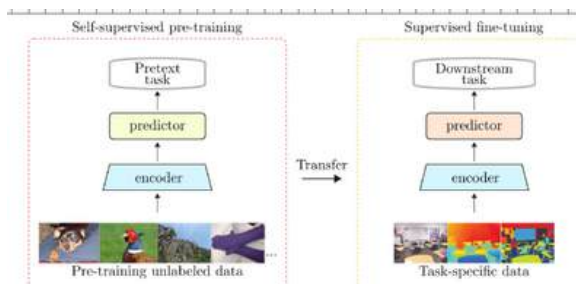


b. Semi-supervised learning: This technique uses a small amount of labelled data and a large amount of unlabelled data to train a chatbot for a specific task. It can use a few labelled dialogues and several unlabelled dialogues to train a chatbot for conversational response generation. The idea is that by using the unlabelled data, the chatbot can learn more about the language distribution and improve its generalisation ability.



c. Fine tuning: This technique involves training a model on a specific task or domain using supervised learning, where the model learns from human-labelled data or feedback. It can be applied to a LLM that has been pre-trained on a large corpus of text data using self-supervised or semi-supervised learning to generate conversational responses. The model can adapt to the specific task or domain and improve its performance and accuracy.

The LLM will learn the features and nuances of the human language through self-supervised learning, where it is given a pretext task to predict the next word in the sentence. Now, this will be used to do



the main task of generating responses from the input text in the chatbot, which will be a downstream task for the LLM. A downstream task can be text summarization, question answering, or conversational response generation. A downstream task can be done in semi-supervised training, fine-tuning, or both, depending on the data, the model, and the task. Fine tuning is basically done to make the model adapt to the downstream task more effectively, and semi-supervised learning can be applied to use more unlabelled dialogues to improve the chatbot's performance. All of the above trainings are not sequential but complementary.

2. NLP: NLP, short for Natural Language Processing, represents the integration of linguistics with artificial intelligence, enabling computers to comprehend human language, both written and verbal. The development of programming languages has empowered humans to command machines in a manner that ensures mutual understanding. NLP plays a pivotal role in facilitating human-to-computer communication by allowing individuals to interact with machines using natural language commands. NLP comprises two key components: Natural Language Understanding (NLU) and Natural

Language Generation (NLG). NLU analyses and extracts information from user input, whether in the form of text or speech, utilizing a hierarchy of classification models. This implies that NLP goes beyond perceiving speech or text as a mere sequence of symbols with literal meanings, striving instead to decode contextual meaning and intent based on factors such as sentence structure, context, idioms, and more. Once NLP comprehends the user's input, NLG comes into play, generating a natural language output that responds to the user's input and fulfils their intent. Given the infinite range of potential inputs and scenarios, it is impractical for developers to program NLP for every conceivable situation. Instead, NLP should be able to learn how to decipher the meaning of any possible input and generate appropriate output based on the data it has been trained on. Therefore, machine learning algorithms are employed to develop NLP systems. NLP has already found extensive application in voice assistants, auto-complete and spell-check functionalities, speech recognition systems, sentiment analysis tools, and more, in addition to its utilization in AI-powered chatbots. By leveraging NLP, AI-powered chatbots facilitate natural and conversational interactions with users, delivering relevant information, solutions, or actions. NLP empowers chatbots to effectively handle various aspects of human language, including ambiguity, context, tone, emotion, and personality.

3. API: API, which stands for application programming interface, is a protocol facilitating communication between different applications. It encompasses a set of rules and specifications that applications must adhere to in order to maintain seamless communication. It acts as an intermediary that processes

the data transfer between two disconnected applications.

When conducting online payments, using PayTM or Net Banking to purchase your preferred smartphone from Flipkart, you are redirected to a payment interface. This payment interface serves as an API connecting the payment system with the ecommerce platform, enabling the exchange of data to verify the completion of your payment. An application can refer to any software fulfilling a specific task, such as Flipkart, while the interface serves as the point of communication between two applications, like Razorpay. API calls are made to obtain information from Flipkart through the API's

Uniform Resource Identifier (URI), referred to as a request. The API then initiates a call to the server of Paytm or the respective bank. In response, the Razorpay server provides the requested information to the API, which subsequently transfers the data to Flipkart.

On a broader scale, there are two types of APIs: WebAPIs and Private or Internal APIs.

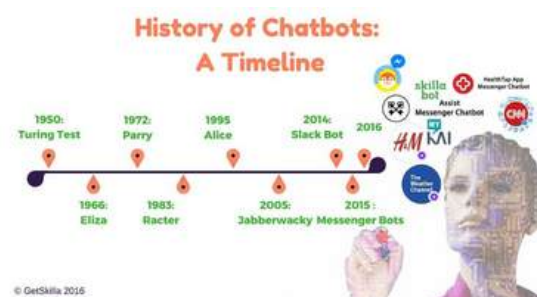
WebAPIs connect multiple applications over the internet, utilizing protocols such as HTTP, XML, JSON, and REST. For example, ChatGPT utilizes WebAPIs to enable developers to integrate ChatGPT into their own applications, products, or services. For instance, on Quora's webpage, ChatGPT generates responses to questions displayed prominently at the top of the webpage.

Private APIs, on the other hand, are not exposed to the public internet but rather limited to clients and developers within an organization or application. For example, ChatGPT uses private APIs to power

SnapChat's Chatbot, My AI, within the application.

Basis	ChatGPT/BING	Bard	Metamate
Company	Open AI/Microsoft	Alphabet Inc.	Meta
LLM	GPT	LaMDA and PaLM2	LLaMA
Parameters	175 billion Parameters	540 billion Parameters	65 billion Parameters
Token Limit	4096 tokens per request, which is about 3000 words for English text	1000 tokens per session, which is about 750 words for English text	512 tokens per request, which is about 380 words for English text
Launch Date	November 30, 2022	March 21, 2023	June 12, 2023
Availability	Public Worldwide	Available in more than 180 countries	Access to Meta's employees only

Background (What is happening)



The evolution of AI-powered chatbots can be traced back to the early attempts of creating natural language interfaces, such as ELIZA, PARRY, and SHRDLU in the 1960s and 1970s. These chatbots were based on simple rules and patterns, and could not handle complex or ambiguous inputs.

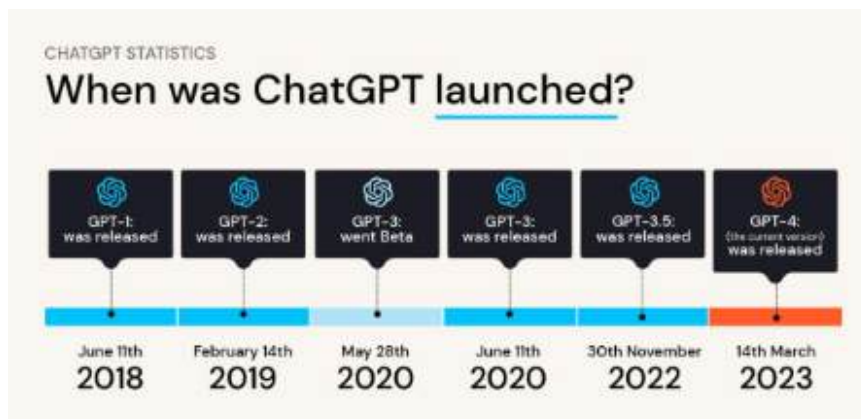
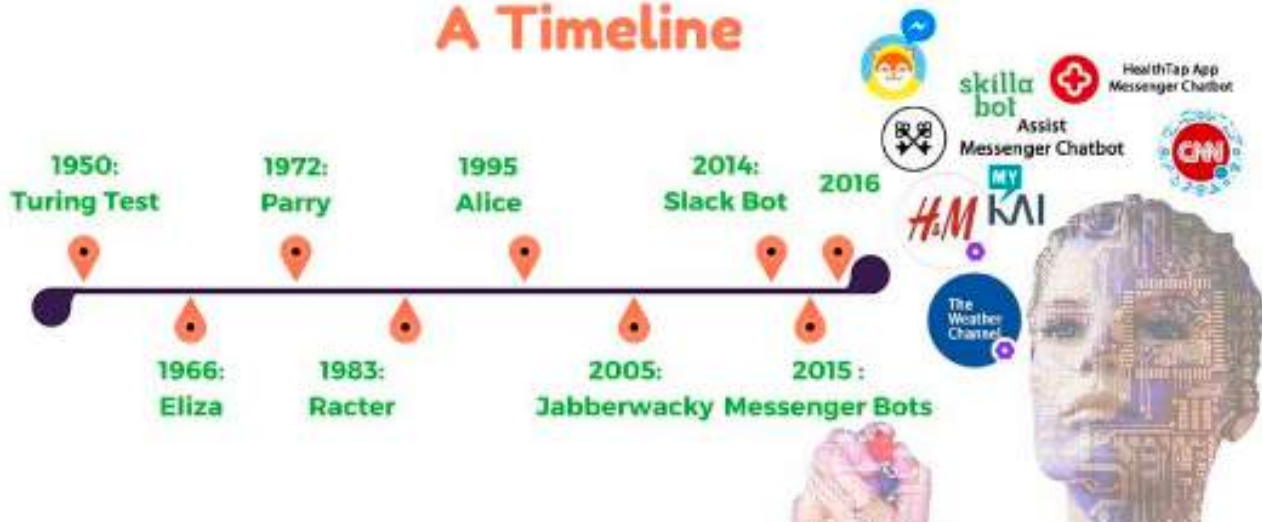
The next wave of chatbot development came with the rise of the internet and the emergence of web-based chatbots like ALICE, Jabberwacky, and Cleverbot in the 1990s and 2000s. These Chatbots started using advanced technologies such as natural language processing (NLP), machine learning, and sentiment analysis to understand human language and generate responses. They also learn from their interactions with users and evolve over time.

The introduction of the GPT architecture by OpenAI in 2018 marked a pivotal moment that sparked considerable interest. Initially known as GPT-1, this architecture

Basis	ChatGPT/BING	Bard	Metamate
Company	Open AI/Microsoft	Alphabet Inc.	Meta
LLM	GPT	LaMDA and PaLM2	LLaMA
Parameters	175 billion Parameters	540 billion Parameters	65 billion Parameters
Token Limit	4096 tokens per request, which is about 3000 words for English text	1000 tokens per session, which is about 750 words for English text	512 tokens per request, which is about 380 words for English text
Launch Date	November 30, 2022	March 21, 2023	June 12, 2023
Availability	Public Worldwide	Available in more than 180 countries	Access to Meta's employees only

Table 1. Difference between the most popular AI-Powered Chatbots

History of Chatbots: A Timeline



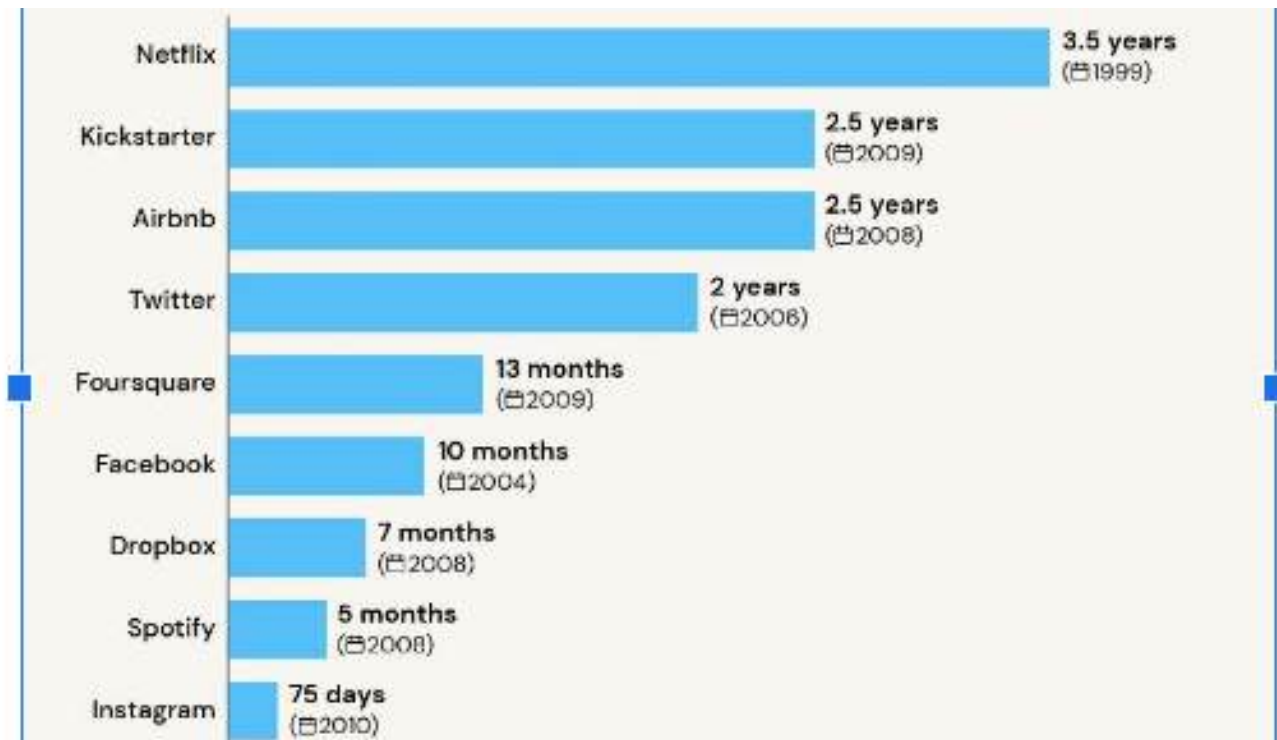
consisted of 12 layers, 768 hidden units, and 110 million parameters. Since its inception, it has undergone continuous improvement through the process of fine-tuning. Although the architecture remains largely consistent across different versions of GPT, there is a substantial difference in the volume of data each version was trained on, specifically reflected in the number of parameters. For instance, GPT-2, introduced in 2019, featured a maximum version with 8.3 billion parameters. Following that, GPT-3 was unveiled in May 2020, with its maximum version boasting an impressive 175 billion parameters.

The launch of ChatGPT on November 30th, 2022 marked a significant turning point in the way people seek information, this public version of ChatGPT is based on GPT-3.5, a fine-tuned version of GPT-3 released in 2020. With its ability to generate human-like responses in a conversational setting, ChatGPT has completely changed the way people interact with technology. Now, users can ask ChatGPT any question and receive an answer in real-time, without the need to sift through mountains of search results or navigate confusing interfaces. This is where the "Tech War" among the world's largest companies began.

Soon after the launch of ChatGPT, Google's CEO Sundar Pichai has sounded a "Code Red" alarm over the potential threat these chatbots pose to Google's core business of search. The company is so concerned that they have even called on their initial founders, Larry Page and Sergey Brin, to help fast-track the development of Google's AI technology. Now, the question that arises is why a company as dominant as Google would even be concerned about a product developed by a significantly smaller company with only 375 employees?

Here, my friends, the principle of product obsolescence comes into play. In the world of business, one of the biggest concerns for any product or service is the risk of becoming obsolete. If people stop using a particular offering, it's likely to fade away into irrelevance. This is a concern that search engines must contend with, especially as new technology emerges that could potentially disrupt their hold on the market. People who used to use search engines for their queries, or basically were "Googling" before, now use these AI Powered Chatbots to get answers to their queries. This is because not only did the transformative architecture improve the natural language processing of chatbots, but it also has access to data on all events that occurred in the past. This makes these chatbots an ideal source of information for anyone looking to get personalised responses to their queries in a matter of seconds, making it an incredibly useful tool to save time and increase productivity.

Additionally, one of the key drivers of user satisfaction and retention is convenience. The more streamlined and efficient a product or service is, the more likely people are to use it. This is why Google has become such a popular tool - it offers a simple, fast way to access information online. However, as technology advances and new platforms emerge, there is always the risk that users will start looking elsewhere for their information needs. AI-Powered chatbots offers a conversational interface that allows users to complete tasks quickly and easily, it is able to provide a level of convenience that traditional search engines may struggle to match. For example, if someone needs to write an apology email to a teacher for not submitting an assignment on time, they can simply ask ChatGPT for assistance, rather than searching for a template online.



The shift is definitely happening- When ChatGPT was first introduced, it was clear that the technology would be helpful and widely used. However, no one expected it to get popular wildly. In just five days, the platform had already crossed one million users while globally famous apps like Instagram and Spotify took 2 months and 5 months, respectively. The ChatGPT website currently receives an estimated 1 billion monthly website visitors.

Despite the concerns from Google, some people still question the reliability of ChatGPT's information. For instance, some have noted that it may not always be updated with real-time data or may lack information on recent world events. Additionally, the chatbot does not always specify its sources of information, leading to doubts about its credibility. It is also important to remember that ChatGPT is still in its early stages of development and it is definitely not an immediate threat to Google's monopoly because, some way or another, people have to go through links to be satisfied with the information. However, these issues are likely to be addressed in the future, making it more difficult for

traditional search engines to remain relevant. As chatbots continue to evolve and improve, they may become a serious threat to the dominance of traditional search engines like Google. And it happened when Microsoft's Bing search engine in partnership with OpenAI addressed some of these flaws in their latest AI-powered chatbot.

The news of Microsoft partnering with OpenAI to introduce chatbots in Bing has sent shockwaves through the tech industry, particularly at Google. On February 7, 2023, Bing with AI Powered Chatbot based on OpenAI GPT-4 model was launched as part of a major overhaul to Bing that included a new design, logo, and features. In essence, the Bing chatbot is ChatGPT connected to the internet, making it a highly advanced and adaptable tool for information gathering and search.

By integrating a search engine with ChatGPT, Microsoft has created a powerful tool that solves many of the major flaws in the OpenAI version of the chatbot.

1. One major improvement is the ability to update with real-time data. With access to the vast resources of the Internet, the Bing chatbot can quickly gather the most up-to-date information for any user query.
2. The chatbot will display the sources of its information, enhancing its credibility and reliability.
3. Another significant improvement is the introduction of three modes of output: creative, balanced, and precise. This allows users to choose the level of detail and accuracy they need for their specific query, making the chatbot more versatile and useful.

On March 14th, 2023, OpenAI released GPT-4 for its premium users, which is even smarter and more capable than the previous version. Technically, GPT-4 was released for Bing prior to ChatGPT and Bing is offering it free of charge. Is this a partnership or acquisition?

In July 2019, Microsoft invested \$1 billion in OpenAI, securing its position as the "exclusive" provider of cloud computing services "Azure" to OpenAI. OpenAI uses Azure to train all of its models. Since then, Microsoft has continued to invest in OpenAI, with industry sources estimating that Microsoft's total investment in OpenAI has reached \$2 billion. In a recent blog post, Microsoft announced that it would be extending its partnership with OpenAI, with Microsoft Azure continuing as the exclusive cloud provider for the tool. This is the third phase of financial backing by Microsoft, but the company has not revealed the amount of investment in this latest phase. Industry sources, however, have speculated that the amount may be around \$10 billion.

Microsoft's investment in OpenAI and ChatGPT demonstrates the company's commitment to improving its search engine. By integrating OpenAI's ChatGPT with Microsoft's search engine, Microsoft has not only fixed the major flaws with the ChatGPT but also built something so innovative that it can challenge the monopoly of Google.

It is not like Google was not working on their AI technology, they have always been at the forefront of developing innovative AI technology, but they have been cautious about ensuring that it does not pose any threat to humanity. One of their developments, LaMDA, is a family of conversational large language models that were initially open-sourced by Google Research in 2017. It has been used internally to enhance the efficiency of tasks within the organization. In 2020, Google introduced Meena, a neural network-powered chatbot developed under the Evolved Transformer Program that used the LaMDA technology.

The first-generation LaMDA was officially announced during the 2021 Google I/O keynote, with a successor, LaMDA 2, unveiled in 2022 during the Google I/O keynote. In April 2022, Google unveiled PaLM (Pathways Language Model), an enhanced iteration of LaMDA. PaLM boasts an impressive 540 billion parameters and adopts a dense decoder-only architecture, employing only a decoder module. In contrast, LaMDA encompasses approximately 137 billion parameters and utilizes a seq2seq architecture, featuring both an encoder module and a decoder module. However, LaMDA garnered a lot of attention when Google's Engineer Blake Lemoine claimed that the chatbot had become sentient in June 2022. Top officials at Google rejected these claims, stating that

there is no evidence to suggest that LamDA has become sentient.

Now, the question arises: if Google already possessed an AI technology as powerful as ChatGPT, if not more, why weren't they the first to introduce it to the world? Well, here is another business logic. Google has been cautious about disclosing their LamDA technology as they did not want to face the backlash from the public. As a publicly listed company, they understood that bad PR could potentially cost them billions of dollars in market capitalization. On the other hand, OpenAI Limited is a rather small Private Limited company with 375 employees so they have nothing to lose as such. In the past, Google Duplex received a lot of criticism and they became the first company to come up with AI Principles to demonstrate that they are developing the technology responsibly. Therefore, they did not want to release the LamDA technology until the public was prepared to accept it.

Despite Google expressing concern when ChatGPT was launched (Code Red), they remained hesitant about introducing their own chatbots to the public, apprehensive of potential negative public sentiment that could potentially impact their stock prices. Although Google officially announced their own chatbot, Bard, on February 6, 2023, they were not yet prepared for its launch. It was only after Microsoft and Bing's partnership announcement that Google felt compelled to release it, even though they were still unprepared, as evident from their launch event.

Bard is an AI-powered chatbot developed by Google. The initial version of Bard was based on a lightweight model derived from LaMDA. However, it was subsequently upgraded to utilize Google's most

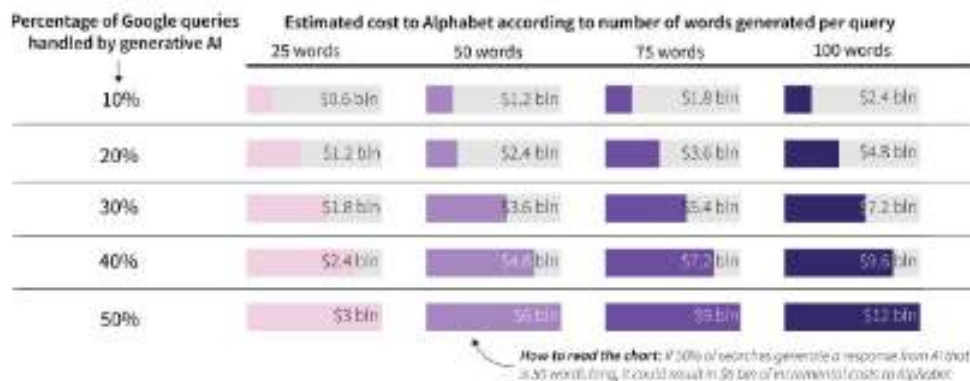
advanced language model, PaLM 2. This enhanced version of PaLM equips Bard with increased efficiency and enables it to perform at a higher level of proficiency. During the demo GIF shared by Google while announcing the chatbot, a factual error occurred - "What new discoveries from the James Webb Space Telescope can I tell my 9-year-old about?" Bard replied: "JWST took the very first pictures of a planet outside of our own solar system." this quickly became the subject of widespread ridicule. This misstep proved costly for Google's parent company, Alphabet, as they lost a staggering \$100 billion in market value within just two days. The humiliation didn't stop there, as technical glitches during the presentation event further undermined the company's efforts to promote the new chatbot. Despite the disastrous start, Google eventually launched Bard on March 21, 2023, but with access limited to the UK and USA only. Bard is currently available in 3 languages and over 180 countries and territories.

On June 12, 2023, Meta made an announcement regarding their own chatbot named "Metamate" which is built upon LLaMA, a LLM developed by Meta. Currently, the chatbot is exclusively used by Meta's employees to enhance organizational efficiency and improve its overall performance and reliability.

These AI-powered chatbots have introduced generative AI to the general public. Generative AI involves training a deep learning algorithm with vast amounts of data, enabling it to generate responses to user queries by combining and synthesizing the available information. This breakthrough has led to the development of a wide array of AI tools capable of generating not just text, but also images, videos, audio and more. Every day, numerous AI tools are being launched, each possessing distinct capabilities to generate output based on user queries. However, for the purpose of this research paper, our focus will be specifically on chatbots.

More costs for Google with AI

Powering Google Search with AI known as a large language model, like the chatbot sensation ChatGPT, could cost its parent company Alphabet \$1.2 billion for every 10% of queries that this burgeoning tech handles, analysts at Morgan Stanley estimate.



Problems created by the AI-Powered Chatbots for the traditional search business

Monetization of the Chatbots: Monetization of chatbots poses a significant challenge for search engines companies. These AI-powered chatbots have disrupted the traditional revenue model heavily reliant on advertisements. Integrating chatbots with search engines not only reduces the number of searches conducted but also decreases the exposure of targeted advertisements to users. Consequently, user engagement with these ads diminishes, leading to lower revenue for search engine companies.

When searching for information on a specific topic, traditional methods often involve sifting through numerous websites and interacting with ads tailored to the individual. However, when utilizing chatbots to obtain information, this dynamic changes. As a result, the frequency and visibility of ads decrease, adversely affecting the CPM/CPC model. According to a report by Reuters, an exchange with AI known as a large language model likely costs 10 times more than a standard keyword search and that it could represent several billion dollars of extra costs for search engine companies, so the priority of these companies is to monetize the chatbots early.

AI-powered chatbots as substitutes for search engines: Prior to the advent of the first search engine, Archie, individuals had to visit archives or libraries, which could take days to find information on a particular topic. With the development of Archie in 1990, the time was reduced to hours. Subsequently, the creation of the first web-based search engine, Wandex, in 1993 further decreased the search time to a few minutes. As more advanced browsers like Google, Yahoo!, Aliweb, Lycos, and others emerged, the search process became even more efficient, with results appearing in just a few seconds.

AI-powered chatbots can provide specific information like "when was the internet invented" within seconds. However, when it comes to finding complex information on the web, such as the best career choice for oneself, it becomes highly subjective, and users may have to sift through numerous websites to eventually find useful information. By utilizing AI-powered chatbots that have the ability to analyze and comprehend web content, users can not only obtain specific information quickly but also access complex information from multiple sources in a conversational manner. Considering the human tendency to take shortcuts, there is a strong possibility that people will increasingly rely on chatbots to seek and substitute



Likelihood of using AI-powered chatbots like ChatGPT for online search among respondents in Southeast Asia as of February 2023, by selected country. Source: Statista

Microsoft Bing SEARCH CHAT English + Shiva 856

Okay so summarising all of the working of artificial neural network there are basically three layers, first is input layer, second are hidden layers where computation happens and finally output layer. The input layer will give certain inputs to the single node of the hidden layer which will have an activation function and a certain bias and also weights must be assigned to that node to determine the strength of the signal passed to the other node connected to this node. The activation function will add the weighted inputs to the bias of the node. The bias of the node will determine the threshold or the value of the input where the output changes from low to high value and vice versa. On the basis of the value of the output you can determine whether the activation function fires, that is, high value, not fires, that is low value and does not even fire, that is zero value. The output of this node will be sent as a signal to the other node signifying the probability of the output. Am I correct?

Yes, you are correct in your summary of the working of an artificial neural network. You have covered the main components and concepts of a neural network, such as layers, nodes, inputs, outputs, weights, biases, and activation functions. You have also explained how the activation function determines the response of the node to its inputs, and how the bias affects the threshold of the activation function. You have also described how the output of the node is sent as a signal to other nodes in the next layer or as the final output of the network.

24 of 30

Ask me anything...

search for information unless chatbots begin providing inaccurate responses (Hallucinating). According to NSF, 74% of internet users prefer using chatbots when seeking answers to simple questions.

Additionally, users can engage in interactive conversations with chatbots, allowing them to delve deeper into specific topics. The responses provided by chatbots can be highly personalized, catering to the user's individual needs. For instance, users can request examples or ask chatbots to explain a topic using visual aids like flowcharts. To illustrate this further, I have attached some screenshots showcasing my own experience of learning through Bing chatbot about the technology behind automated cars. As AI technology advances, chatbots will become even more proficient in providing accurate responses to complex queries, further enhancing their usefulness and reliability.

Information Crisis on the internet: In general, websites aim to sell products or services, such as e-commerce platforms or tools. Users typically visit e-commerce websites for shopping or utilize specific tools on dedicated websites. In such cases, chatbots may have negligible use, and search engines can continue utilizing the CPM/CPC (cost per thousand impressions/cost per click) model to generate advertising revenue, benefiting both publishers and companies. However, publishers providing information on their websites will be significantly affected by chatbots, as users will increasingly rely on chatbots to obtain consolidated responses from multiple sources, reducing traffic to the publishers' websites. This reduction in advertising revenue not only impacts the company but also affects the publishers

who rely on ads displayed on their web pages. Consequently, content-driven publishers may have less incentive to publish information online, potentially leading to an information crisis where real-time data may not be adequately updated by bloggers, news outlets, and other information providers on the internet. Furthermore, websites offering products or software solutions may develop their own applications, leading users to rely less on search engines, thereby reducing the advertising revenue for the search engine companies.

Changing meaning of SEOs: Search engines rank webpages on the search engine results page (SERP) based on various criteria such as keywords, links, structure, and speed. Search Engine Optimizations (SEOs) encompass the practices aimed at improving a website's organic traffic by optimizing these aspects. Organic search results refer to unpaid listings that search engines determine to be most relevant to a user's query. In addition to organic results, there are sponsored listings where website publishers pay a fee to the search engine to appear in search results for specific queries.

Chatbots, on the other hand, may use different criteria or factors such as context, intent, emotion, and personality to select and present the most relevant content to their users. They can also employ various formats or channels like voice, text, images, videos, etc., to deliver content. Consequently, website publishers will need to adapt and optimize their content and data to align with the preferences and expectations of chatbots and their users. This will ultimately redefine the meaning of SEOs for advertisers, and search engine companies will need to develop an advertising model that accommodates

searches conducted through chatbots. This shift will likely intensify competition among publishers vying to have their content used as responses by chatbots when addressing user queries.

Possible solutions to monetize the Chatbots

Possible ways to monetize chatbots: We need to understand that most of these chatbots are developed by tech giants themselves, who will integrate them with their search engines to attract more users. It's worth noting that these search engines are mostly free to use, thanks to the targeted advertisement business model. Therefore, there's a high likelihood that these AI-powered chatbots will also be free for users. This raises the question of how these search engines will generate revenue, considering that integrating chatbots may reduce the number of searches and subsequently decrease their revenue from search advertising. These companies need to establish a business model that not only compensates for the decline in search advertising revenue but also increases revenue through other means. By doing so, search engine companies can continue to grow. Here are some possible ways:

1. Advertisement on Chatbot Interface: According to a study by Tidio, 88% of search engine users have had at least one conversation with a chatbot in the past year. In the future, users will rely on AI-powered chatbots to reduce the effort of browsing multiple websites. This means that there will be high user engagement on chatbot interfaces, presenting a great opportunity to display ads

(A) Targeted Advertising: Search engine companies can place ad banners on chatbot interfaces and generate revenue

through bidding by potential advertisers. The key distinction between targeted advertising on search engines and chatbots lies in personalization. Search engines track user online activity such as search history, location, demographics, etc., to create ads with a higher chance of being clicked. Conversely, chatbots can understand the user's intent through conversations, enabling them to build personalized consumer profiles. As a result, users can be shown more tailored and personalized ads, increasing the likelihood of engagement. Search engine companies can charge premium rates for ad banners on chatbot interfaces, establishing a significant revenue stream. However, it's crucial to ensure that the interface isn't overloaded with ads, which could impede users' ability to interact with the chatbot smoothly.

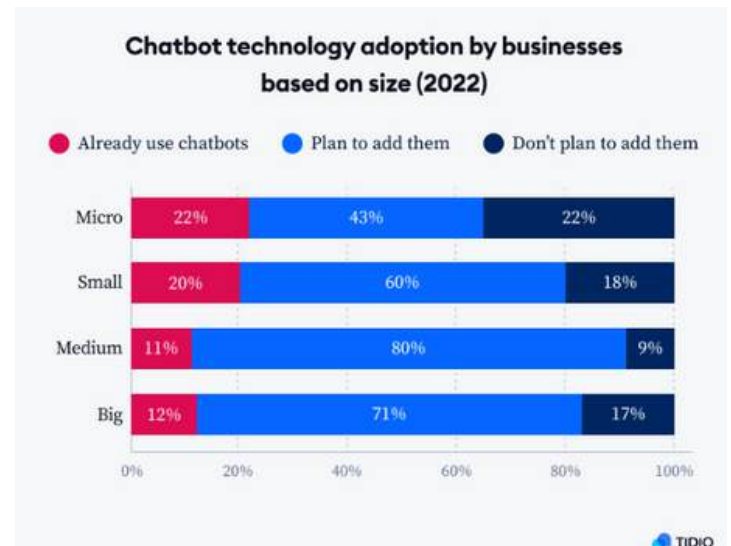
(b) Sponsored Links: Chatbots integrated with search engines often provide sources from which their responses are derived. This presents an opportunity to offer sponsored links relevant to users' queries. For example, if a user searches for free video editing software, the chatbot can provide original sources along with a link to a company's website offering such software. Advertisers would bid for users' queries, similar to bidding for keywords, and the highest bidder would have a greater chance of their link being displayed as a source for a specific query. When users click on these links or make purchases through them, search engine companies earn revenue from advertisers. This approach involves presenting the chatbot's solution based on the user's query, rather than displaying personalized ads. The chatbot can provide users with the information necessary to persuade them to click on affiliate links, thereby boosting the search engine companies' revenues.

2. Offering subscription: Search engine companies can also provide premium features of chatbots at a price by offering subscription. By adopting a subscription model, these companies ensure a consistent cash flow from customers who renew their subscriptions periodically. This approach helps reduce the uncertainty and risk associated with revenue fluctuations compared to the advertising model.

Under this subscription model, search engines can offer basic chatbot functionality free of charge while charging for advanced features. These advanced features may include reduce limitations on the number of responses per conversation, personalized recommendations, in-depth insights, sentiment analysis to empathize with users, and increased accuracy of responses. Additionally, companies can remove ads entirely from the chatbot interface, providing a clean and uninterrupted user experience. For example, ChatGPT recently launched a paid version of ChatGPT called 'ChatGPT Plus'. It costs \$20 per month and uses GPT-4, which is a fine-tuned version of GPT 3.5 that powers the free plan of ChatGPT. It offers faster and more accurate responses and guarantees availability for the premium users even when the server is under high demand.

3. Licensing Chatbot's API: In addition to offering chatbots on their own platforms, search engine companies can also license their APIs to different developers. This allows developers to integrate chatbot functionality into their own applications, websites, or platforms. Licensing the API means that the API provider grants the API user a legal permission to use the API according to certain terms and conditions. The API user pays a fee to the API provider to access and use the API for a specific

purpose or duration. For example, OpenAI charges \$0.002 per 1,000 tokens for its ChatGPT API. This can be a great strategy to diversify revenue streams from these chatbots.

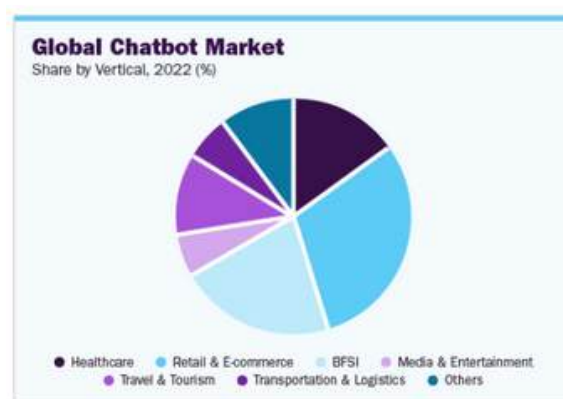


diversify revenue streams from these chatbots. Once licensed, developers have the flexibility to customize and fine-tune the chatbot API to meet their specific requirements and use cases. This can be done through various methods and features, such as adjusting training data, parameters, webhooks, or embeddings. For instance, Snapchat's My AI, an AI-powered chatbot, is also built on the ChatGPT API. However, it is a customized version with more restrictions and personalization, designed to recommend AR filters or places to visit for Snapchat Plus subscribers. With the increasing demand for chatbots and other AI tools, driven by consumers' desire for convenience, companies offering software solutions should consider integrating chatbots into their own software as a core functionality.

4. Developing and selling chatbots for different industries: Search engine companies have the potential to generate revenue not only by licensing APIs to developers but also by establishing

a dedicated department focused on developing customizable chatbots for various businesses and institutions across different industries. These chatbots can be employed by organizations to provide 24/7 customer support, delivering timely and relevant information, addressing complex queries and requests, etc. By doing so, organizations can improve engagement, enhance after-sales services, and ultimately increase customer satisfaction, leading to higher sales and a stronger reputation. According to Tidio, and 62% of consumers would rather talk to a chatbot than a human agent if the alternative was to wait 15 minutes for an answer. Additionally, implementing chatbots can reduce the reliance on large teams of human agents, resulting in cost and resource savings for companies. A report by ServiceBell indicates that chatbots can help businesses save up to 30% on their customer support costs. This advantageous solution benefits both customers and organizations, making conversational AI chatbots highly sought after in the B2B space. According to

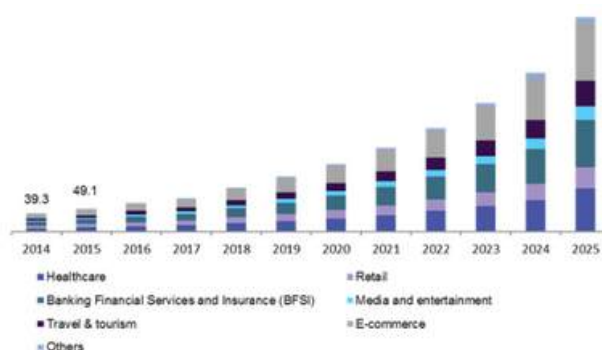
others. According to Grandview Research, the retail and e-commerce segment dominated the chatbot market in 2022, holding a market share of 30.34%. The BFSI segment accounted for the largest market share in 2022 and generated the highest revenue, while the travel and tourism vertical is expected to exhibit the highest growth during the forecast period.



Given that North America serves as a major hub for chatbot industry startups, it secured the largest market share of approximately 30.72% in 2022. According to The Apps Solutions, the e-commerce sector is poised to be the largest user of chatbots, followed by healthcare and BFSI.



sought after in the B2B space. According to to grow from \$10.7 billion in 2023 to \$29.8 billion by 2028, with a predicted compound annual growth rate (CAGR) of 22.6% during the forecast period. Chatbots find applications in various industries, including healthcare, retail, BFSI (Banking, Financial Services, and Insurance), media and entertainment, travel and tourism, e-commerce, and



Considering the usefulness of AI-powered chatbots for organizations and customers across diverse industries, the adoption rate of these chatbots is expected to rise in the coming years. Search engine companies can capitalize on this market opportunity by developing customizable chatbots tailored to the specific needs of organizations. They can train their existing

Global Chatbot Market

Share by Vertical, 2022 (%)

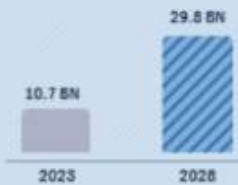


Conversational AI Market Overview

2023 - 2028
22.6%



MARKET OPPORTUNITY
OVER NEXT 5 YEARS



KEY MARKET
PLAYERS

- Microsoft (US)
- Google (US)
- IBM (US)
- AWS (US)
- Baidu (China)
- SAP (Germany)
- OpenAI (US)

TWO OF THE KEY DRIVERS OF
THE MARKET WILL BE:

- Rising demand to embrace AI-powered digital experience across government sector
- Increasing focus on generative models for enriched customer engagement and retention

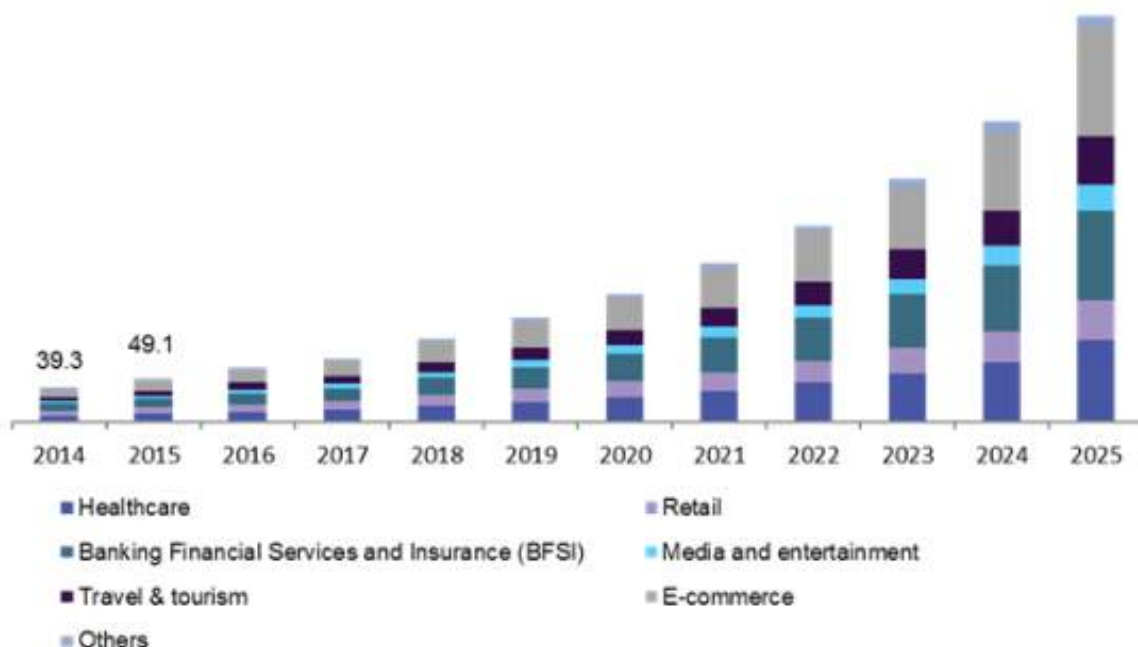
The market is competitive
with few players occupying
the market share

NORTH
AMERICA
IS GOING TO BE
THE LARGEST
REGION DURING



MARKET SEGMENTATION
BY OFFERING

- Solutions
- Services



AI-powered chatbots using an organization's data to create a chatbot that aligns with its requirements, and then continue to provide maintenance and support for that organization. This approach can generate a significant portion of revenue for these companies.

Conclusion

This paper examined the impact of AI-powered chatbots on the search advertising business, which is a major source of revenue for search engine companies. The paper used qualitative and quantitative secondary data to support its arguments. The paper found that chatbots do not pose an immediate threat to the search advertising business, but they will eventually disrupt it in the long-term, as conversational AI technology improves and user preferences change. Chatbots can provide relevant information directly to users without the need for searching multiple websites or viewing targeted ads, which will reduce the number of searches and the revenue from displaying ads, which could be disastrous for search engine companies.

Interestingly, these chatbots that are eating into the advertising revenue of search engine companies have actually been introduced by the companies themselves. Following the introduction of ChatGPT in November 2022, search engine giants like Microsoft and Google have been compelled to integrate their own chatbots into their browsers, in order to remain competitive in the declared AI war. However, this integration has created a monetization challenge for these companies, as they need to find a suitable revenue generation model for chatbots that compensates for the loss of advertising revenue.

This paper contributes to the existing literature on chatbot and search engine technology by providing a comprehensive analysis of the impact and challenges of AI-powered chatbots on the search advertising business. The paper also proposed several solutions for the most prominent challenge of monetization of chatbots, such as advertising on the chatbot interface, offering subscriptions to access premium chatbot functionality, licensing the chatbot's API to developers, and developing and selling customizable chatbots for different industries.

Future areas for study

The paper recommends conducting further research on three crucial aspects: the changing significance of SEOs for advertisers after the introduction of AI-powered chatbots, the potential information crisis on the internet caused by AI-powered chatbots, and the ethical and legal issues concerning chatbot data collection and privacy.

Limitations

This paper has some limitations that should be acknowledged and addressed in future research. First, this paper relies on secondary data to support its arguments, which may not be accurate, reliable, or up-to-date. Future research should use more diverse and robust sources of data, and employ appropriate methods and techniques to collect and analyse them. Second, this paper focuses on a general and broad topic of chatbot and search engine technology, which may not capture the specific nuances or challenges of different chatbot platforms, search engine companies, or user segments, future research should specify the context and boundaries of its study.

Bibliography

Companies ranked by Market Cap - CompaniesMarketCap.com. (n.d.)

Search Engine Market Share Worldwide | Statcounter Global Stats. (n.d.). StatCounter Global Stats.

Johnston, M. (2022b). How Google (Alphabet) Makes Money: Advertising and Cloud. Investopedia.

Adamopoulou, E., & Moussiades, L. (2020). Chatbots: History, technology, and applications. Elsevier, 2, 100006

Alphabet Revenue 1970-1969 | GOOG. (n.d.). MacroTrends

Cuofano, W. I. G. (2023). Google Revenue Breakdown. FourWeekMBA.

Franek, K. (2022, September 30). Microsoft Revenue Breakdown by Product, Segment and Country. KAMIL FRANEK | Business Analytics

Hessinger, S. (2019). What is the Difference Between AdSense and AdWords? Small Business Trends

Lau, W. (2023, May 15). What is Targeted Advertising? AdRoll.

Do people really want personalised ads online? | Global Witness. (n.d.). Global Witness.

Benes, R. (2019). Do People Actually Want Personalized Ads? Insider Intelligence.

Team, D. (2023). GPT-1, GPT-2 and GPT-3 models explained. 360digitmg.com.

Cheng, T. (2022, October 13). Supervised, Semi-Supervised, Unsupervised, and Self-Supervised Learning. Medium

Scuotto, I. (2022, February 22). Natural Language Processing Chatbots: The Beginner's Guide. Landbot.io.

Jamal, T. (2022). What is an API and How Does it Work? APIs for Beginners. freeCodeCamp.org.

What is an Application Programming Interface (API)? | IBM. (n.d.)

Wikipedia contributors. (2023). Search engine. Wikipedia.

Pathways Language Model (PaLM): Scaling to 540 Billion Parameters for Breakthrough Performance. (2022, April 4).

Bibliography

Wikipedia contributors. (2023a). History of the web browser. Wikipedia.

Brandl, R. (2023, April 6). ChatGPT Statistics 2023 All the latest statistics about OpenAI's chatbot. Tooltester.

Phelan, D. (2023, January 23). How ChatGPT Suddenly Became Google's Code Red, Prompting Return Of Page And Brin. Forbes.

Ruby, D. (2023). 59+ ChatGPT Statistics — Users, Trends & More (July 2023). DemandSage.

Blogs, M. C. (2023, February 7). Microsoft and OpenAI extend partnership - The Official Microsoft Blog. The Official Microsoft Blog.

Wikipedia contributors. (2023a). LaMDA. Wikipedia

Lemoine, B. (2023, May 12). Is LaMDA Sentient? — an Interview - Blake Lemoine - Medium. Medium.

Tiku, N. (2023, May 23). The Google engineer who thinks the company's AI has come to life. Washington Post

Croak, M. (2023, January 11). Responsible AI: Looking back at 2022, and to the future. Google.

Olson, E. (2023, February 9). Google shares drop \$100 billion after its new AI chatbot makes a mistake. NPR.

Southern, M. G. (2023, March 22). Google Launches Bard AI Chatbot To Compete With ChatGPT. Search Engine Journal.

Ortiz, S. (2023). What is Google Bard? Here's everything you need to know. ZDNET.

Butler, S., & Gloor, J. (2023). GPT 3.5 vs. GPT 4: What's the Difference? How-To Geek.

Hendelmann, V. (2023, January 24). Who Owns OpenAI? It's NOT Elon Musk! productmint.

Ruby, M. (2023, May 7). How ChatGPT Works: The Model Behind The Bot - Towards Data Science. Medium.

Key Chatbot Statistics You Should Follow in 2023. (n.d.). ChatBot Blog.

Fokina, M. (2023). The Future of Chatbots: 80+ Chatbot Statistics for 2023. Tidio.

Bibliography

Chatbot Market Size, Share & Trends, Analysis Report By Application (Customer Services, Branding & Advertising), By Type, By Vertical, By Region (North America, Europe, Asia Pacific, South America), And Segment Forecasts, 2023 - 2030. (n.d.).

Conversational AI Market Size, Industry Share Forecast 2028. (n.d.). MarketsandMarkets.

Vodovatova, E. (2019, November 19). Chatbot Development in 2023: Applications, Benefits, Trends. The APP Solutions.

ServiceBell - Add live human connection to your website. (n.d.).

Amadeo, R. (2023, February 22). ChatGPT-style search represents a 10x cost increase for Google, Microsoft. Ars Technica.

Income, B. P., & Income, B. P. (2022). 9 Ways to Make Money From Chatbots. Beginners Passive Income.

Statista. (2023, May 10). Likelihood of using AI chatbots for online search SEA 2023, by country.

original product's brand value. According to the OECD (2016), counterfeit and pirated goods account for about half a trillion dollars in annual imports and account for around 2.5 percent of worldwide imports. Counterfeit items are a problem in many businesses. Modernization and liberalisation of the economy, like technological growth, have offered an excellent platform and opportunity for manufacturers and marketers to misappropriate existing trademarks. Even the growing popularity of internet shopping has facilitated the sale of counterfeit goods and their prevalence has been increasing. According to Rawat and Singh (2021), today's youth is more fashion-conscious, yet not everyone can afford premium labels. Everyone aspires to be a member of the upper crust.

As a result, consumers are drawn to and deliberately purchase counterfeit items to satisfy their demand for branded products, a practice known as "willful counterfeiting". This problem is exacerbated by the internet's widespread prevalence. As a result, stopping such actions is quite difficult. According to Eisend and SchuchertGüler (2006), it is regarded as a serious issue by numerous industries, including convenience and home items, pharmaceuticals, and automobiles. The ethical quandary of counterfeit items is that they may harm consumers, producers, and society.

Litreature Review

The mark of the brand is one of the most important reasons for purchasing counterfeit items. People acquire such items to get access to the upper crust of society (Grossman & Shapiro, 1988; Wilcox et al., 2009).

People buy counterfeit things to avoid being a spendthrift by purchasing authentic products. A further reason is that the cost of a knockoff is one-third or one-fourth of the price of the authentic product. Because of this benefit, customers overlook the substandard quality of such items (Tom et. al., 1998; Wiedmann et. al., 2012).

The uniqueness of counterfeit items and genuine goods differs. Counterfeit items are associated with poor quality and low pricing (Grossman & Shapiro, 1988; Lai & Zaichowsky, 1999; Gistri et al., 2009; Sharma & Chan, 2011). Premium quality and pricey items are available in a discerning market associated with original luxury branded products (Kapferer& Bastien, 2009; Turunen & Laaksonen, 2011).

According to prior research, customers' attitudes regarding counterfeited products vary by country. Such disparities can be explained by factors such as social influence, personality traits, and product attributes (Ang et al., 2001; Wee et al., 1995).

Statement of Problem

The statement of problem describes how product counterfeiting impacts customer purchasing behaviour.

Recently, the incremental growth in demand for counterfeit items has caused a slew of issues for legitimate product makers, including a loss of market share, revenues, and consumer unhappiness. It is critical to understand that profits made from trading counterfeit items come at the price of real producers' economic losses. In addition to lost revenues, real producers must deal with immeasurable negative consequences like brand degradation, loss of goodwill, and unavoidable investment expenses. Unfortunately, counterfeit luxury goods buyers are unaware that they are the final losers. Because of the low sales income, original producers will be less interested in investing resources in the

creation of new and better goods and consumers will have to make do with mediocre quality products.

Secondly, counterfeit products customers subject themselves to a variety of risks, including social, performance, psychological, and prosecution risks. The primary issue with counterfeit products is with luxury items; with time, the quality of counterfeit products has improved to the point that buyers find it impossible to distinguish between real and counterfeit products. Stopping the bad impacts of counterfeits is insufficient, thus analysing customer behaviour toward these types of products appears to be the best strategy to reduce the repercussions of selling and buying counterfeits. Based on this, the problem statement of this study may be succinctly described as studying customer attitudes, actions, and intentions, toward purchasing counterfeit goods.

Objective of the Project

This research study on customers' purchasing behaviour regarding counterfeits has several research objectives.

These objectives are as follows:

1. To ascertain the influence of counterfeit products on consumer purchasing behaviour.
2. To determine if price, quality, product type, income, perceived risk, contentment, and personal fulfilment influence the purchase of counterfeit goods.
3. To determine if attitudes toward counterfeits have an impact on purchasing counterfeit items.
4. To determine customer awareness and satisfaction concerning counterfeit items.
5. To identify the customer thought process that leads to the purchase of counterfeit or fake items.

6. To investigate the acquisition of counterfeit items and their link to customer demographics.

Research Methodology

HYPOTHESIS

H0 (Null hypothesis): There is no impact of counterfeit products on consumer purchasing behaviour.

H1 (Alternate hypothesis): There is an impact of counterfeit products on consumer purchasing behaviour.

VARIABLE IDENTIFICATION/ CONSTRUCTION/

In the survey conducted, the respondents were asked fourteen questions. Each variable corresponds to a question in the survey. These variables are:

Dependent variables- purchase intention, consumer buying behaviour (subdivided into quality, price, and brand)

Independent variable- counterfeit products which have been further subdivided into sub-variables- satisfaction, risk, and attitude.

METHODS USED AND THEIR PURPOSE

Target population- this is the population about which we want to make inferences. Since we want to test the impact of counterfeit products on consumers' purchasing behaviour, the target population is all the people with purchasing power.

Sample population- this is the population from which the sample is taken. The sample population has been taken from the students of IIM Rohtak, their families and friends, and my friends from other universities. **Sample size-** since the number of responses received was 118, the sample size (n) is 118.

Data collection source- Primary.

The target respondents were people with purchasing power. This method serves the purpose of analysing the counterfeit purchasing behaviour of the respondents first-hand.

Convenience sampling- This report has used random sampling. In this case, the sample is primarily identified by the convenience of the researcher. Since I am a student of IIM Rohtak, for conducting this research, I entailed the help of my college friends.

Reliability and Validity of the tools used

Since validity and reliability are important aspects to ensure thorough research, I have ensured construct validity by using the questions in my questionnaire from similar and existing research projects. Additionally, the validity of the tools and survey is ensured by cross-checking the results of this research with the findings from other similar research projects.

As for the reliability, it has been ensured with the internal consistency method. Reliability analysis has been performed using Cronbach's Alpha. If the alpha value is .70 or higher, the instrument is considered reliable. All variables on the Likert scale have values of 1 to 5, where 5= strongly disagree and 1= strongly agree. Questions 7,8,10,11 and 14 are scored oppositely (i.e., 1 = Strongly disagree and 5 = Strongly agree). Across the scale, a high score on a question indicates a strong belief. To determine whether the items on this questionnaire reliably measure the same construct, 118 respondents completed the questionnaire and Cronbach's alpha was calculated based on their scores.

Reliability Analysis

Variables Cronbach's Alpha No. of Items

Consumer Purchasing Behaviour	0.73	3
Counterfeit Products	0.707	4

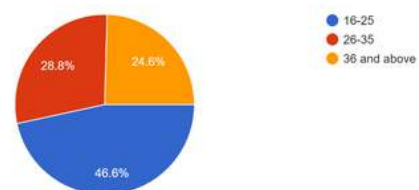
Cronbach's Alpha was used to determine whether the questionnaire was sufficiently reliable. Its lenient cut-off is 0.6, and the strict cut-off is 0.7. The questionnaire was reliable because we received 0.73 for the dependent variable and 0.707 for the independent variable.

Data Interpretation

GRAPHICAL INTERPRETATION

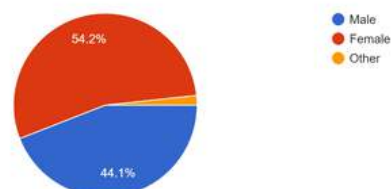
The responses to each question were collected and converted into a graph to understand the respondent's views visually. The raw responses to the survey questions are presented below:

1. Age:
118 responses



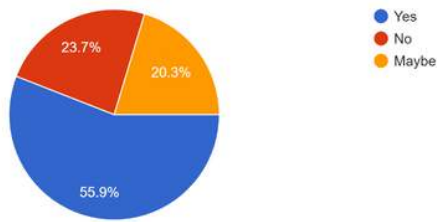
Out of the total sample of respondents, the highest percentage 46.9% (n=53) of the respondents were between the age of 16 to 25 followed by 28.3 % (n=32) between 26 to 35, and 24.8 % (n=28) 36 years and above.

2. Gender:
118 responses



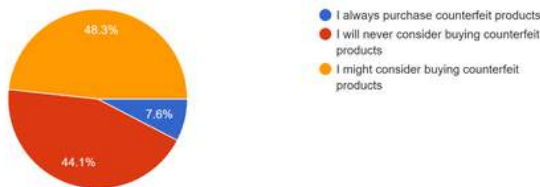
There were 50 male and 62 female respondents out of which the majority portions were females at 54.9% as compared to their male counterparts i.e., 44.2%.

3. Have you ever purchased/experienced counterfeited (fake) products?
118 responses



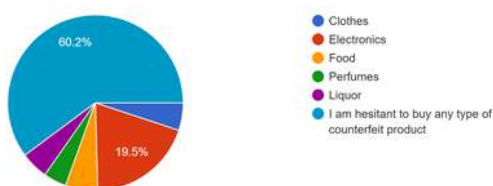
In the survey, 76.1% (n=86) of the respondents said that they had either definitely or possibly purchased/experienced counterfeit products whereas only 23.9% (n=27) respondents had never purchased a counterfeit product. Thus, we can say that majority of the respondents have bought counterfeit products willingly, which can be interpreted as counterfeit products having an effect on consumer purchasing behaviour for this sample.

4. Does the type of product you are buying affect your decision to buy counterfeit products?
118 responses



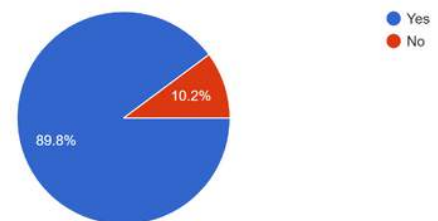
As visible from the graph, we can see that the majority of the respondents (55.9%) will buy or consider buying counterfeit products over their original counterparts, showing that counterfeit products do have an effect on consumer purchasing behaviour for this sample.

5. Which product category are you most hesitant to buy counterfeits of?
118 responses



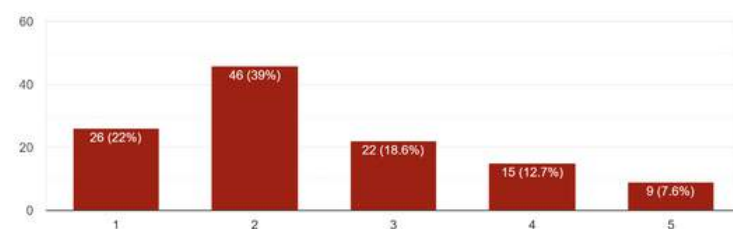
Despite the respondents being wary of buying counterfeit products, we see that 60.2% are hesitant to buy any kind of counterfeit product, yet as per the previous questions, we see that the hesitation is not enough to prevent the consumers from purchasing counterfeit products. This means that the consumers can be persuaded to stop buying counterfeits and purchase only authentic products.

6. Does income affect the purchasing of counterfeit products?
118 responses



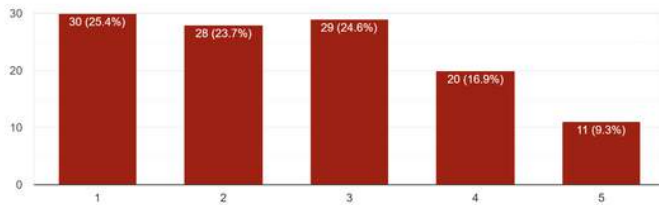
The majority of the respondents (89.8%) feel that a person's income plays an important role in purchasing counterfeit goods. So, manufacturers of branded products should make some items that are sold at an affordable rate, too, so that people can enjoy branded products at a rate that doesn't force them to purchase knockoffs.

7. Counterfeits have satisfying quality
118 responses



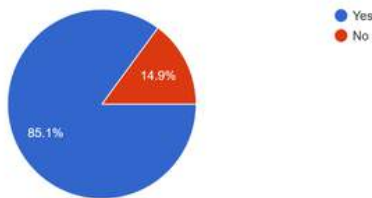
Since the scale of 1-5 moves from "strongly agree" to "strongly disagree", we see that 72 out of the 118 respondents believe that counterfeit products have a satisfying quality. This shows that the majority's purchasing behaviour is influenced by counterfeit products as even the cheaper knockoffs seem to have satisfactory quality.

8. For me to pay the price of the original product is easy
118 responses



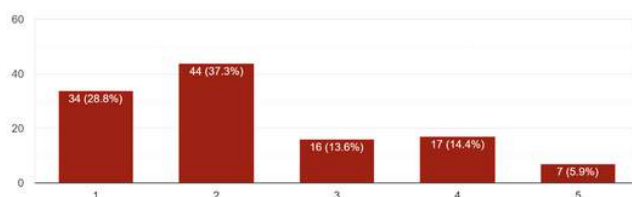
Since the sample population had respondents majorly from the middle or upper classes of India, we see that the majority of respondents feel they are capable of paying the price for an authentic product, yet we observe from the responses to the above questions that they are willing to buy counterfeits. This shows that despite being able to afford authentic products, their purchasing behaviour is influenced by counterfeit products.

9. Is price of the product one of the main reasons for purchasing counterfeit products?
74 responses



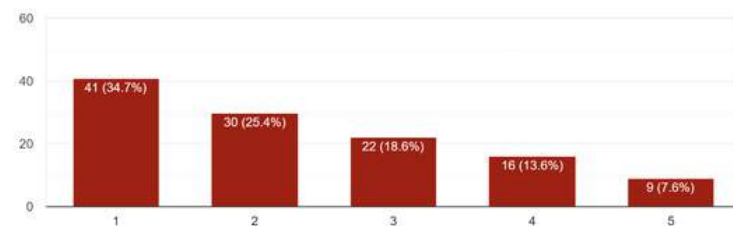
The majority of the respondents (85.1%) feel that a product's price plays an important role in purchasing counterfeit goods. High-priced products make consumers go for the cheaper knockoffs. Thus, price is a driving variable for people to purchase counterfeits.

10. Counterfeit products are just as good as designer/branded products
118 responses



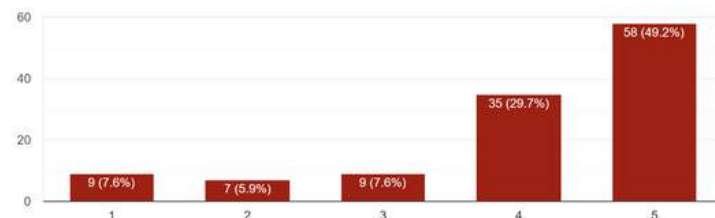
Observing the bar graph, 78 out of 118 respondents believe that counterfeits are just as good as branded products. This gives them an incentive to buy counterfeits, thus making their purchasing behaviour inclined toward buying the counterfeit counterpart of products.

11. Purchasing counterfeit products can satisfy my needs
118 responses



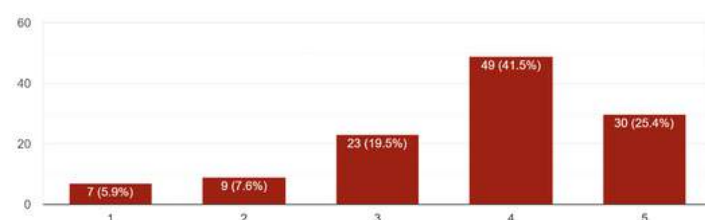
Since the majority (60.1%) believe that counterfeit products can satisfy their needs, consumer purchasing behaviour is influenced by counterfeit products as they may be inclined towards buying counterfeits since their needs are satisfied.

12. In terms of safety, the counterfeit products may not be as safe as the genuine one
118 responses



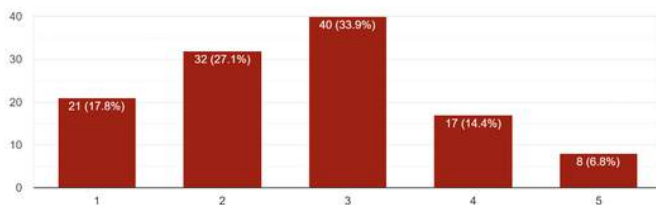
An overwhelming majority (78.9%) disagree that counterfeits may not be as safe as genuine products. Since they believe that even counterfeits are safe, it affects their purchasing behaviour.

13. By selecting counterfeit products, others might have a negative perception toward the buyer
118 responses



A large majority (66.9%) disagree that purchasing counterfeits makes others look at them negatively. This shows that their attitude towards counterfeits is a positive one and people do not view purchasing knockoffs as something negative. This positive attitude affects consumers' counterfeit purchasing behaviour positively.

14. Attitude towards counterfeit products
118 responses



Lastly, the majority of respondents either approve of counterfeiting or are neutral towards it. This shows that the neutral respondents can be influenced to not purchase counterfeit products if steps by companies and governments are taken

INTERVAL ESTIMATE OF POPULATION PROPORTION

In the question asked in our questionnaire “do counterfeits have satisfying quality?”, the people who responded with ‘strongly agree’ and ‘agree’, that is, 1 and 2, do not support our null hypothesis that counterfeits do not affect consumer purchasing behaviour as counterfeit products’ quality sways the consumers from buying authentic products. The number of people who answered ‘strongly agree/agree’ was 72 out of 118 respondents. I want to develop a 95% confidence interval estimate for the proportion of the population that believe that counterfeit quality has no impact on consumer purchasing behaviour.

$$n=118$$

$$\bar{p} = 72/118 = 0.6102$$

$$\alpha = 0.05$$

$$z_{\alpha/2} = 1.96$$

$$= 0.6102 \pm 1.96$$

$$= 0.6102 \pm 1.96 * 0.0449$$

$$= 0.6102 \pm 0.0880$$

$$= 0.5222 \text{ to } 0.6982$$

Thus, we are 95% confident that the proportion of respondents that do not favour our null hypothesis is between 52.22% and 69.82%.

In the question asked in our questionnaire “for me to pay the price of the original product is easy?”, the people who responded with ‘strongly agree’ and ‘agree’, that is, 1 and 2, support our null hypothesis that counterfeits do not affect consumer purchasing behaviour as original product’s price does not sway the consumers from buying authentic products. The number of people who answered ‘strongly agree/agree’ was 58 out of 118 respondents. I want to develop a 95% confidence interval estimate for the proportion of the population that believe that counterfeit quality has no impact on consumer purchasing behaviour.

$$n=118$$

$$\bar{p} = 58/118 = 0.4915$$

$$\alpha = 0.05$$

$$z_{\alpha/2} = 1.96$$

$$= 0.4915 \pm 1.96$$

$$= 0.4915 \pm 1.96 * 0.0460$$

$$= 0.4915 \pm 0.0902$$

$$= 0.4013 \text{ to } 0.5817$$

Thus, we are 95% confident that the proportion of respondents that favour our null hypothesis is between 40.13% and 58.17%. There exists no majority consensus regarding this question which can be because the sample population of this survey belong to the upper or middle class of India and thus, they don’t face any problems in paying for the original product. Yet, despite this, as per the responses to other questions, we see that these respondents are willing to purchase counterfeit products. Thus, in this case, the respondents might or might not favour the null hypothesis.

In the question asked in our questionnaire “are counterfeit products just as good as designer/branded products?”, the people who responded with ‘strongly agree’ and ‘agree’, that is, 1 and 2, do not support our null hypothesis that counterfeits do not affect consumer purchasing behaviour as counterfeit products sway the consumers from buying authentic products. The number of people who answered ‘strongly agree/agree’ was 78 out of 118 respondents. I want to develop a 95% confidence interval estimate for the proportion of the population that believe that counterfeit quality has no impact on consumer purchasing behaviour.

$$\begin{aligned} n &= 118 \\ \bar{p} &= 78/118 = 0.6610 \\ \alpha &= 0.05 \\ z_{\alpha/2} &= 1.96 \\ &= 0.6610 \pm 1.96 \\ &= 0.6610 \pm 1.96 * 0.0436 \\ &= 0.6610 \pm 0.0854 \\ &= 0.5756 \text{ to } 0.7464 \end{aligned}$$

Thus, we are 95% confident that the proportion of respondents that do not favour our null hypothesis is between 57.56% and 74.64%.

In the question asked in our questionnaire “if purchasing counterfeit products can satisfy my needs?”, the people who responded with ‘strongly agree’ and ‘agree’, that is, 1 and 2, do not support our null hypothesis that counterfeits do not affect consumer purchasing behaviour as satisfaction from counterfeit products sways the consumers from buying authentic products. The number of people who answered ‘strongly agree/agree’ was 71 out of 118 respondents. I want to develop a 95% confidence interval estimate for the proportion of the population that believe that counterfeit quality has no impact on consumer purchasing behaviour.

$$\begin{aligned} n &= 118 \\ \bar{p} &= 71/118 = 0.6017 \\ \alpha &= 0.05 \\ z_{\alpha/2} &= 1.96 \\ &= 0.6017 \pm 1.96 \\ &= 0.6017 \pm 1.96 * 0.0451 \\ &= 0.6017 \pm 0.0884 \\ &= 0.5133 \text{ to } 0.6901 \end{aligned}$$

Thus, we are 95% confident that the proportion of respondents that do not favour our null hypothesis is between 51.33% and 69.01%.

In the question asked in our questionnaire “counterfeit products are not as safe as genuine ones”, the people who responded with ‘strongly disagree’ and ‘disagree’, that is, 4 and 5, do not support our null hypothesis that counterfeits have no effect on consumer purchasing behaviour as counterfeit products being safe sways the consumers from buying authentic products. The number of people who answered ‘strongly disagree/disagree’ was 93 out of 118 respondents. I want to develop a 95% confidence interval estimate for the proportion of the population that believe that counterfeit quality has no impact on consumer purchasing behaviour.

$$\begin{aligned} n &= 118 \\ \bar{p} &= 93/118 = 0.7881 \\ \alpha &= 0.05 \\ z_{\alpha/2} &= 1.96 \\ &= 0.7881 \pm 1.96 \\ &= 0.8017 \pm 1.96 * 0.0376 \\ &= 0.8017 \pm 0.0737 \\ &= 0.728 \text{ to } 0.8754 \end{aligned}$$

Thus, we are 95% confident that the proportion of respondents that do not favour our null hypothesis is between 72.8% and 87.54%.

In the question asked in our questionnaire “by selecting counterfeit products, others may have a negative perception towards the buyer?”, the people who responded with ‘strongly disagree’ and ‘disagree’, that is, 4 and 5, do not support our null hypothesis that counterfeits do not affect consumer purchasing behaviour as perception due to counterfeit products’

purchase not being negative sways the consumers from buying authentic products. The number of people who answered 'strongly disagree/disagree' was 79 out of 118 respondents. I want to develop a 95% confidence interval estimate for the proportion of the population that believe that counterfeit quality has no impact on consumer purchasing behaviour.

$$\begin{aligned} n &= 118 \\ \bar{p} &= 79/118 = 0.6695 \\ \alpha &= 0.05 \\ z_{\alpha/2} &= 1.96 \\ &= 0.6695 \pm 1.96 \\ &= 0.6695 \pm 1.96 * 0.0433 \\ &= 0.6695 \pm 0.0848 \\ &= 0.5847 \text{ to } 0.7543 \end{aligned}$$

Thus, we are 95% confident that the proportion of respondents that do not favour our null hypothesis is between 58.47% and 75.43%.

Regression Statistics	
Multiple R	0.716130313
R Square	0.512842626
Adjusted R Square	0.500022695
Standard Error	0.630634226
Observations	118

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	3	47.72816736	15.9094	40.0035	9.75E-18
Residual	114	45.33774601	0.3977		
Total	117	93.06591337			

Regression

Model

This study seeks to determine the impact of counterfeit products on consumer purchasing behaviour. A multivariate regression model has been used to determine the effect of the independent variable, consumer purchasing behaviour, on our dependent variable, counterfeit products.

$$Y = a + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3$$

Where Y = Consumer purchasing behaviour
 X_1 , X_2 , X_3 = Satisfaction, risk, and attitude respectively

a , β_1 , β_2 , β_3 = coefficients

Model Summary

The coefficient of determination, represented by R square, indicates how well the model fits the data. It is 51.28% percent here, implying that changes in counterfeit products cause 51.28% changes in consumer purchasing behaviour. More notably, the difference between R square and adjusted R square indicates that there were no sample errors because it is less than 5%.

As we know, the significance value is less than 0.01 and it is significant at 1%. ANOVA also shows the overall significance and fitness of the model. F's cut-off is 4. The value of F, in this case, is 40.0035, which is visibly more than 4. It implies that the model is significant.

Findings

In the interval estimations of the population proportion performed above in data interpretation, we can confidently say that the majority do not favour the null hypothesis in five out of the six cases. This shows that we reject our null hypothesis which states that counterfeit products have no impact on consumer purchasing behaviour.

Additionally, regression analysis indicated there is a significant relationship between counterfeit products and consumer purchasing behaviour, which indicates that if counterfeit products increase by 1%, consumer purchasing behaviour will increase by 51.28 %.

As a result, the data interpretation indicates that the null hypothesis (H_0) was not accepted because there is a significant relationship between counterfeit products and consumer purchasing behaviour, which means that counterfeit products have an impact on consumer purchasing behaviour.

Conclusion

The objective of this research was to determine the impact of counterfeit products on consumer purchasing behaviour. A questionnaire was distributed to gain a better understanding of the topic from a first-hand view.

Primary data was collected via the questionnaire and interpreted using graphical interpretation, interval estimation, and the regression model. As a result, we observed that counterfeit products and consumer purchasing behaviour have a significant relationship, and the null hypothesis was rejected. The data collection and survey results show that original brand manufacturers should continue to be innovative, develop new designs with an affordable range of products, and design products in a way

that counterfeits cannot be conveniently produced, as consumers of original brand products are gravitating toward purchasing counterfeit versions of the products.

Bibliography

Ahmad, N., Shamsi, A., & Hussain, S. (2016) *Impact of Counterfeit Products on Consumer Buying Behavior: Empirical Investigation Form Karachiites. Grassroots. Available at SSRN: <https://ssrn.com/abstract=2866354>*

Ali, AEA. (2020). *Analysing Consumer Behaviour Toward Counterfeit Products: A Systematic Literature Review*. Retrieved from: https://caf.journals.ekb.eg/article_191376_8154ef38eae5960e04eea0e3d11b3f99.pdf

Basu, MM., Basu, S., & Lee, JK. (2015). *Factors Influencing Consumer's Intention to Buy Counterfeit Products. Global Journal of Management and Business Research: B Economics and Commerce*. Retrieved from: <https://scholarworks.iupui.edu/bitstream/handle/1805/23648/Factors%20influencing%20consumer%27s%20intention.pdf?sequence=1&isAllowed=y>

Chellasamy, A, Varma, AS, & Paarakh, N. (2020). *Consumer perception and purchasing behaviour towards counterfeit products- effect on original brand image. International Journal of Research and Review*. Retrieved from: https://www.ijrrjournal.com/IJRR_Vol.7_Issue.9_Sep2020/IJRR0018.pdf

Lai, K., & Zaichkowsky, J. (1999). *Brand Imitation: Do the Chinese have different view? Asia Pacific Journal of Management*.

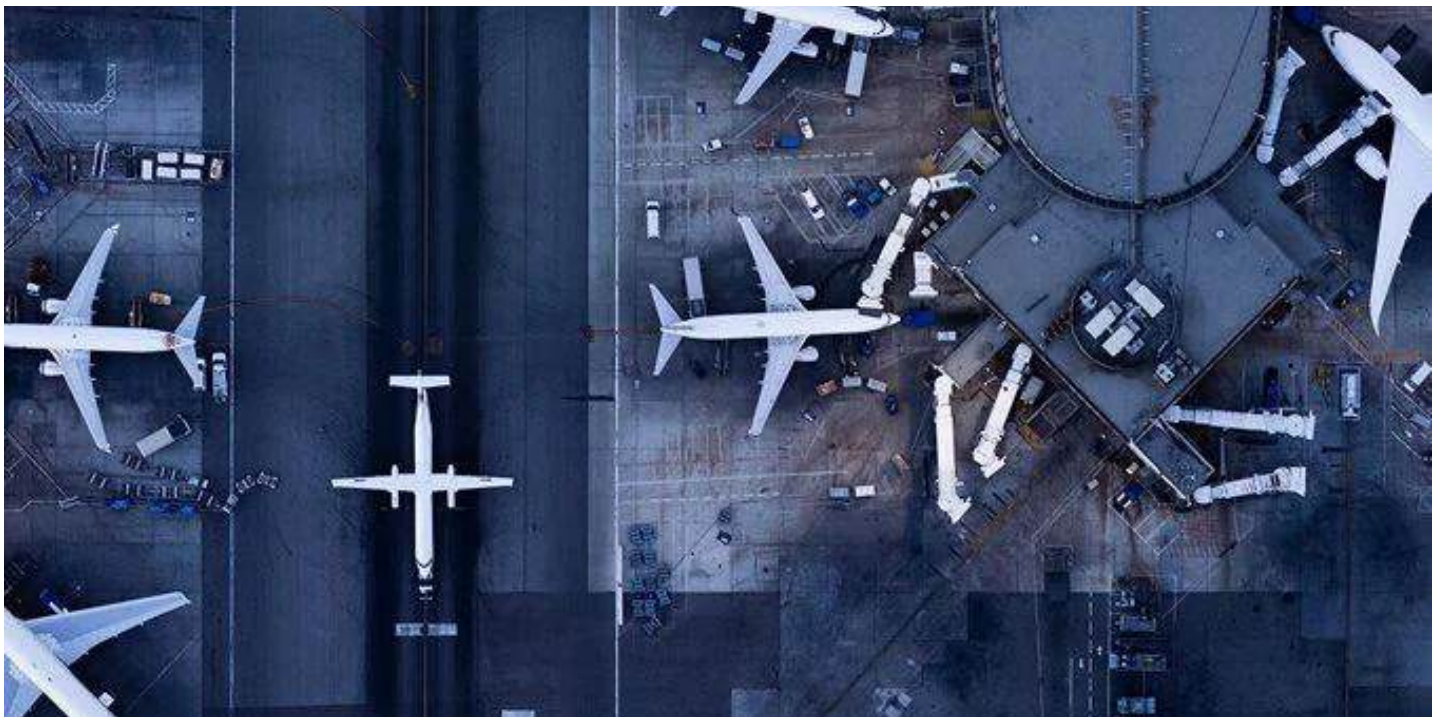
Rawat, S., Singh, G. (2021). *Analysis Of Consumer Buying Behaviour Of Counterfeiting Footwear Products: Empirical Investigation From Uttarakhand. International Journal of Creative Research Thoughts (IJCRT)*. Retrieved from: <https://ijcrt.org/papers/IJCRT2105793.pdf>

Roux, A., Thébault, M., & Roy, Y. (2019). *Exploring consumer behavior regarding counterfeiting: how product category, product attributes, purchase situation and consumers' motivations profiles impact behavior regarding counterfeits and genuine. International Marketing Trends Conference*. Retrieved from: <https://hal.archives-ouvertes.fr/hal-02396977/document>

Tseng, W., Chiu, W., & Leng, HK. (2020). *A comparative study of consumers' intention to purchase counterfeit outdoor products in Taiwan and Hong Kong. Emerald Insight*. Retrieved from: <https://www.emerald.com/insight/content/doi/10.1108/JABES-02-2020-0011/full/pdf?title=a-comparative-study-of-consumers-intention-to-purchase-counterfeit-outdoor-products-in-taiwan-and-hong-kong>

TURBULENCE IN THE SKIES: A CLOSER LOOK AT THE INDIAN AVIATION INDUSTRY'S STRUGGLES

Gopal Saraf & Tanmay Sood
Shri Ram College of Commerce, University of Delhi



Companies in this modern world have reached new heights, but the ones that have even soared above the clouds are airline giants like Emirates, Lufthansa, Indigo. But, sometimes even such airline companies might crash without a parachute, especially in India, also known as the graveyard of airlines, where regional airlines have difficulty operating and retaining passengers due to high price sensitivity. This article attempts to analyse the Indian aviation industry, associated problems and solutions, and dive deeply into the case study of Go Air (now Go First) insolvency.

Analysis of the Indian Aviation Industry

During the previous three years, India's civil

aviation industry has been described as one of the fastest expanding in the country.. It can be broadly classified into scheduled air transport service, which includes domestic and international airlines, non-scheduled air transport service, which includes charter operators and air taxi operators, and air cargo service, which includes air transportation of cargo and mail. Let's look at some statistics and data to analyse the market size and trends in the Aviation Industry of India.

India is expected to take China and the United States as the world's third-largest air passenger market in the next ten years, by 2030. Furthermore, rising demand in the sector has boosted the number of air-

craft in operation, which is expected to reach 1,100 by 2027. Domestic passenger traffic in India is expected to reach 166.8 million in FY22, a 58.5% rise over FY21, and foreign passenger traffic to reach 22.1 million, a 118% increase over FY21.

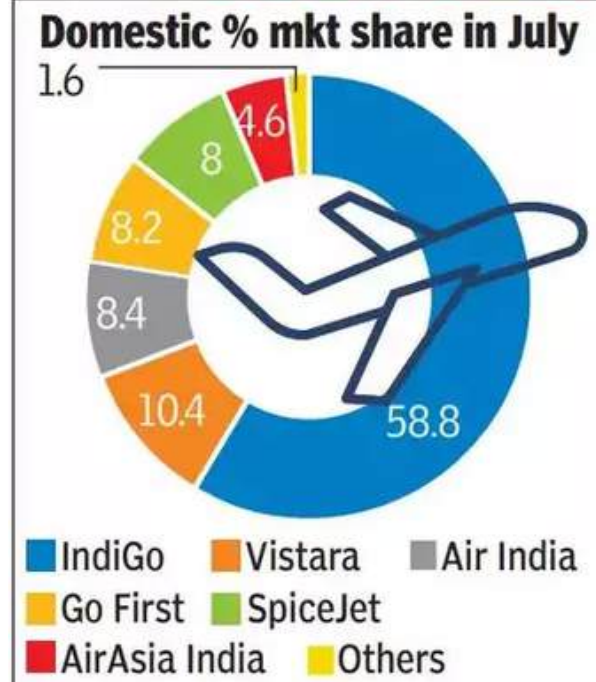
The recovery from the pandemic that brought the aviation sector to a standstill has been surprisingly quick. Domestic air traffic in the country has been rapidly recovering in recent months. According to Directorate General of Civil Aviation(DCGA), in March 2023 domestic carriers flew 13 million passengers, which was 11% more than pre-pandemic levels of 2018 and 2019. According to the Civil Aviation Ministry, India would have over 140 million passengers in fiscal year 2024 alone. The CAPA centre for Aviation India's airport capacity is expected to handle 1.3 billion trips annually in the next 20 years.

As of March 2023, Indigo held a staggering 56.8% market share in the Indian civil aviation industry, followed by Vistara (8.9%) and the freshly privatised Air India (8.8%). Air Asia had 7.6% of the market, Go First had 6.9%, and SpiceJet had 6.4%. AkasaAir, the market's newest entrant, which began operations in August 2022, managed to acquire a 3.3% stake.

The Indian government has launched significant civil aviation programmes. The Ministry of Civil Aviation received Rs. 3,224.67 crores (US\$ 440.36 million) in the Union Budget 2023-24. They plan to revitalise 50 aircraft landing strips, boost regional air connections, and construct 16 new airports across the country. The UDAN Regional Connectivity Scheme (RCS) was allocated Rs. 601 crores (US\$ 77.52 million). RCS-UDAN now operates 459 routes and 70 airports. The NABH (NextGen Airports for Bharat) - Nirman programme aims to increase airport capacity fivefold during

the next 10-15 years. The AAI Startup Policy encourages airport innovation.

PIE OF INDIAN SKIES

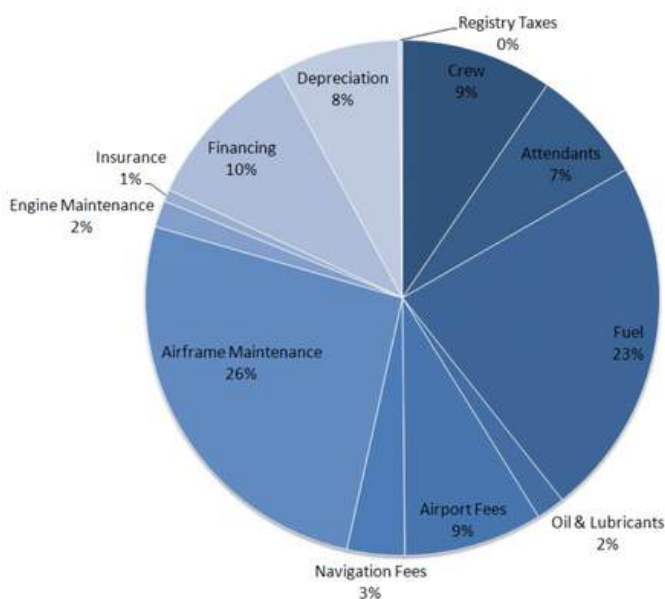


Challenges to the Indian aviation industry

Despite having the world's fastest expanding aviation sector, the country's airlines have battled to compete in a highly competitive and harsh aviation industry. Now, with this growing market, demand for airlines is definitely there, so why do airlines companies in India keep failing? Well, the price sensitivity of the Indian middle class, along with the increased cost of airline fuel in India due to a variety of taxations, increase the burden on airlines. Competing cheap railways don't allow domestic competitors to flourish, whereas the international service providers can't compete with the existing international airlines, who make use of economies of scale to rule out competition through price wars. High cost to train the airline crew, high airport fees, along with aircraft

leasing costs add to the further turmoil of airline companies who struggle to balance their expenses and keep low ticket prices. The average profit margin is 3.1%, which itself fell down drastically during the pandemic.

With excessive growth rate and high competition, the market share is unevenly distributed between competitors. Only 2 companies make up for more than 70% of the Market share in the Industry. Adversities due to Covid-19 have placed many of these companies in distressed situations, and it can only be hoped that the bankruptcy situation of Go First would be the last in this sector.



What went wrong with Go First?

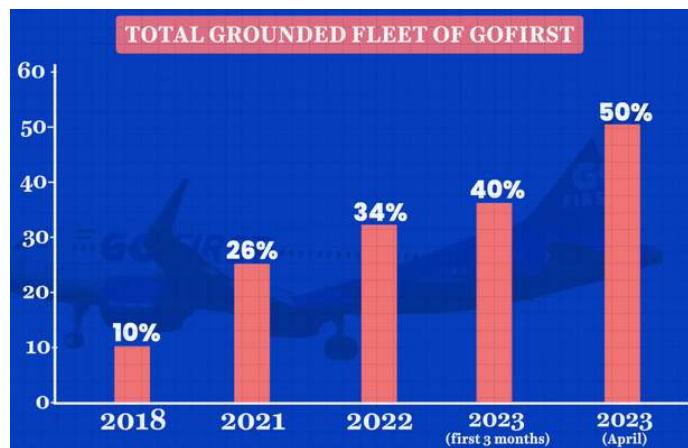
Commencing its operations in 2005 with a single aircraft, Go Air expanded to become the 5th largest airline in India by 2022. With around a million passenger capacity and a whopping rs 4184 crore revenue in 2022, it came as a shock to the general public when the airline suddenly declared insolvency on 2nd May 2023 under section 10 of IBC law, 2016. This major player in

the the aviation industry has now halted operations and declared bankruptcy mostly due to serious failures in Pratt and Whitney engines, leading to several aircrafts getting grounded, cancellations due to operational inefficiencies, and frequent mid air snags, and consequently reducing the company's market share considerably. CEO Khona said "It is an unfortunate decision (filing for insolvency) but it had to be done to protect the interests of the company."

According to the company, this situation has arisen not due to financial mismanagement, but due to non-compliance of the arbitration award by Pratt & Whitney, who did not provide them with functioning engines on time, leading to this scenario. The company had to ground 50% of its fleet and continued to bear 100% of the operating costs, leading to a loss of over Rs 10000 crore to the airlines. Apart from this, the airline now has Rs 11463 due to its various creditors. This situation arose over the years and was not a one day event. The cost of aviation fuel also keeps fluctuating due to geopolitics, economics and demand seasons, and the profitability of Indian airlines as a whole was affected by Covid-19 in 2020 and Russia-Ukraine war in 2022. Combine this with Go First's situation, and you get a bleeding company with depleting profits.

The proceedings are going on in NCLT which grants the company a moratorium period of 6-9 months to be able defer creditor payments. The act provides debt restructuring and emergency reliefs for operations, thereby decreasing the payment obligations and continuing normal business operations during bankruptcy, allowing it to bounce back in

to operations in near future. The Wadia group has no plan to exit the industry, and instead the insolvency proceedings are aimed to revive the company and make it touch the skies again.



By harnessing digital business enablers and improving regional connections, India's potential as a transshipment hub can be realised. The National Civil Aviation Policy 2016 and the National Civil Aviation Programme 2018 are critical in establishing India as a key player in the global aviation sector.

Way Forward

Improving India's aviation infrastructure is critical for the industry's growth. Ongoing UDAN projects must be finished as soon as possible and foreign airports should be expanded under the foreign UDAN programme. The government's goal of establishing India into a worldwide Aircraft Maintenance, Repair and Overhaul(MRO) hub will increase airline cost savings and liquidity. Long-term benefits and economies of scale can be realised through collaboration between civil MROs and the defence sector.

Long-term strategies for advanced aviation research are critical for building a strong industrial ecosystem. Collaboration among Original Equipment Manufacturers(OEMs), industry and educational institutions will aid in the adoption of cutting edge technologies and managerial practices. Aligning Aviation Turbine Fuel taxation with worldwide benchmarks, maybe through GST inclusion, and monetizing unoccupied real estate near AAI airports would help boost financial resources.



AVIATION



MARKET SIZE

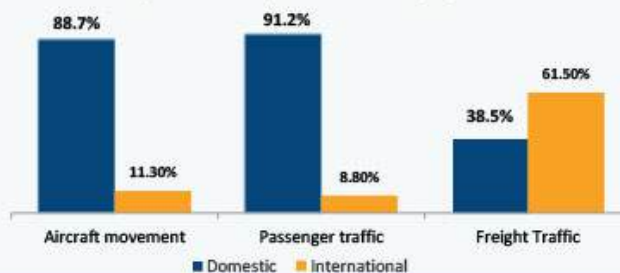
Indian Aviation Sector in FY22

Scheduled Airlines: Distance Flown million km: 969.63	Non-scheduled airlines in operation: 94 (FY22 as of December 2021)
Air Passengers traffic (million): 188.89	Freight Handled (MMT): 3.14 (FY22)
Number of Aircrafts: 712	Number of Operational Airports: 131



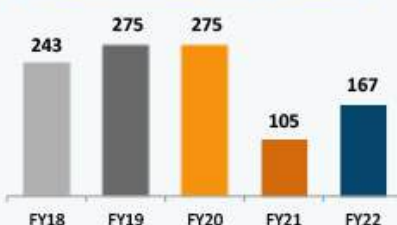
SECTOR COMPOSITION

Activity In AAI Airports - Share (%) – FY21

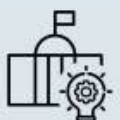
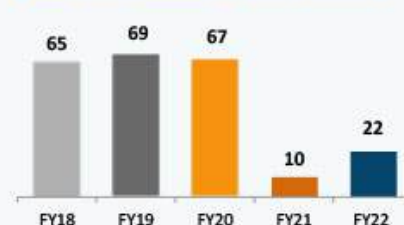


KEY TRENDS

Growth in Domestic Passengers (million)



Growth in International Passengers (million)



GOVERNMENT INITIATIVES



UDAN



100% FDI for
Greenfield Projects

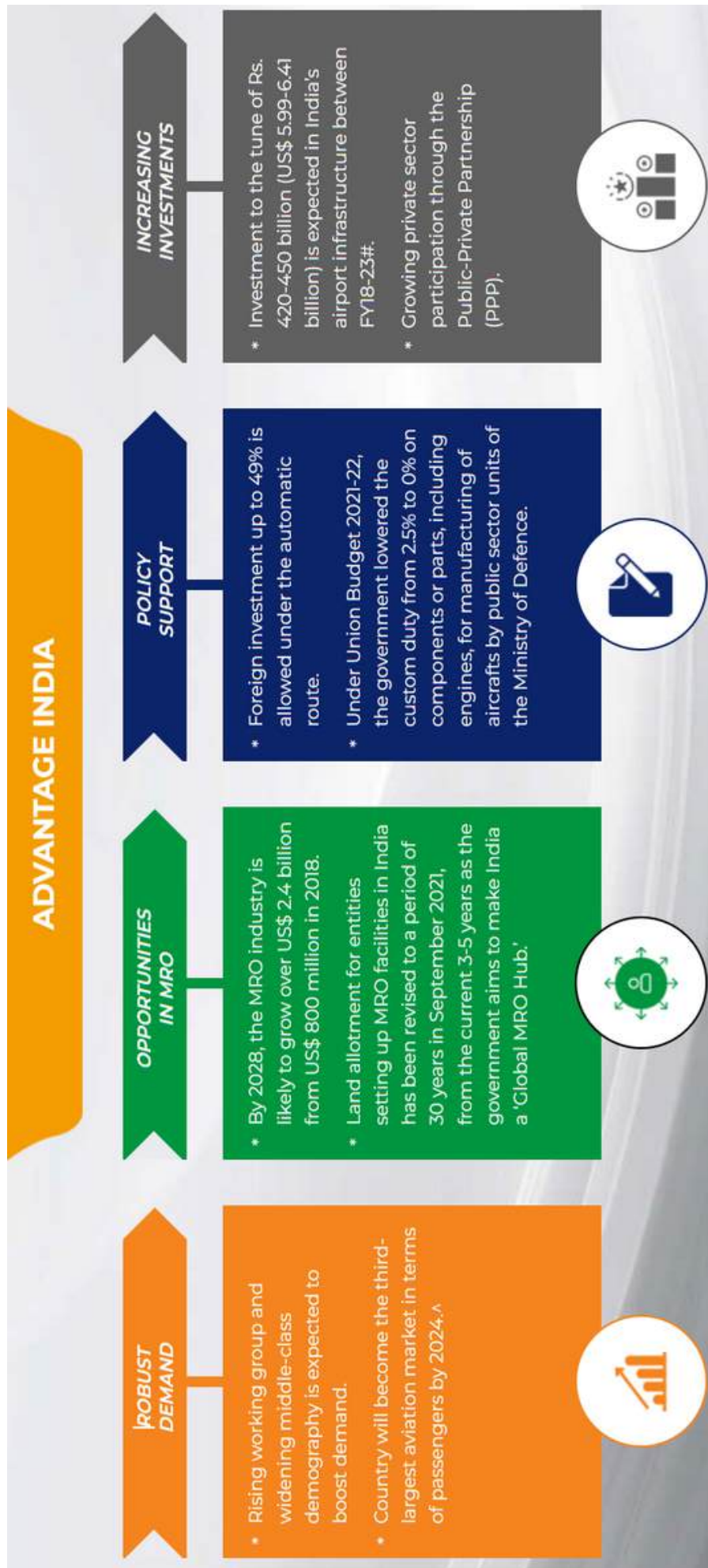


Open Sky Policy



ADVANTAGE INDIA

- **Robust demand:** Rising working group and widening middle-class demography is expected to boost demand.
- **Opportunities in MRO:** By 2028, the MRO industry is likely to grow over US\$ 2.4 billion from US\$ 800 million in 2018. Land allotment for entities setting up MRO facilities in India has been revised to a period of 30 years in September 2021, from the current 3-5 years as the government aims to make India a 'Global MRO Hub.'
- **Policy support:** Foreign investment up to 49% is allowed under the automatic route. Under Union Budget 2021-22, the government lowered the custom duty from 2.5% to 0% on components or parts, including engines, for the manufacturing of aircraft by public sector units of the Ministry of Defence.
- **Increasing Investments:** Investment to the tune of Rs. 420-450 billion (US\$ 5.99-6.41 billion) is expected in India's airport infrastructure between FY18-23.



Bibliography

1. *Aviation Industry in India - Aviation Sector Analysis*, Gr. . . (n.d.). Invest India. <https://www.investindia.gov.in/sector/aviation>
2. Bhutia, P. D. (2023, April 24). *India Needs Entirely New Aviation Policy to Meet Its Powerhouse Potential: CAPA*. Skift. <https://skift.com/2023/04/24/india-needs-entirely-new-aviation-policy-to-meet-its-powerhouse-potential-capa/>
3. *Civil Aviation in India - INSIGHTSIAS*. (2021, September 10). INSIGHTSIAS. <https://www.insightsonindia.com/indian-economy-3/infrastructure/civil-aviation-in-india/>
4. Digital, E. N., & Mallick, S. (2023, May 3). *Go First Insolvency: What CEO Kaushik Khona Has To Say On Pratt & Whitney – Will Go First Fly Again?* ET NOW EX. TimesNow. <https://www.timesnownews.com/business-economy/companies/go-first-insolvency-what-ceo-kaushik-khona-has-to-say-on-pratt-whitney-will-go-first-fly-again-et-now-exclusive-article-99964976>
5. Figure 4: Direct operating cost breakdown. (n.d.). ResearchGate. https://www.researchgate.net/figure/Direct-operating-cost-breakdown_fig2_222112594
6. *India Aviation Market Size & Share Analysis - Industry Research Report - Growth Trends*. (n.d.). <https://www.mordorintelligence.com/industry-reports/analysis-of-aviation-industry-in-india>
7. *India: domestic airline traffic share by passengers carried 2022* | Statista. (2023, February 13). Statista. <https://www.statista.com/statistics/575207/air-carrier-india-domestic-market-share/>
8. *Indian Aviation Industry*. (n.d.). Drishti IAS. <https://www.drishtiias.com/daily-updates/daily-news-editorials/indian-aviation-industry>
9. *Indian Aviation Industry, Aviation Companies in India - IBEF*. (n.d.). India Brand Equity Foundation. <https://www.ibef.org/industry/indian-aviation>
10. Now, E. (2023, May 22). *Go First crisis: NCLAT upholds NCLT order, setback to lessors as bankruptcy proceedings to continue*. The Economic Times. <https://economictimes.indiatimes.com/industry/transportation/airlines/-aviation/go-first-crisis-nclat-upholds-nclt-order-setback-to-lessors-as-bankruptcy-proceedings-to-continue/videoshow/100417695.cms>
11. Shukla, B. A. (2023, May 4). *Go First: What went wrong with Indian airline?* BBC News. <https://www.bbc.com/news/world-asia-india-65458136>
12. Tnn. (2022, August 19). *Vistara 2nd in market share with 10%, behind IndiGo's 59%*. The Times of India. <https://timesofindia.indiatimes.com/business/india-business/vistara-2nd-in-market-share-with-10-behind-indigos-59/articleshow/93649190.cms>

THE INFLUENCE OF CONSUMER BEHAVIOR AND PREFERENCES ON PRODUCT PRICING AND MARKET SEGMENTATION: A CASE STUDY OF SMES OF INDIA

Supradeep Dutta and Harsh Kumar

Swami Vivekananda Subharti University, Meerut and Chaudhary Charan Singh University, Meerut



ABSTRACT

This research paper is all about the “influence of consumer behaviour and preferences on the market segmentation and product pricing” and to highlight this matter the focus put on SMEs of India. This study intends to give ideas and suggestions for improving “market segmentation and pricing strategies” based on customer preferences by using a mixed-methodologies approach, integrating “primary and secondary research methods”. The study recognizes how crucial it is to comprehend the buying habits and needs of the customers when determining price. It emphasizes the importance of market segmentation as a way to identify and target particular customer categorizes with specialized pricing strategies by relying on economic concepts

and other ideas. This study offers a continuous examination of the dynamic interaction among consumer behaviour or needs, pricing decisions, and market segmentation by utilizing “primary research information” from online surveys with the Indian SMEs as well as thematic analysis through previous literature. By focusing on the particular area of SMEs of India and the actions to align market segmentation and price with the preferences of the customers, this research adds to the knowledge. However, the research provides insightful analysis and useful suggestions for the SMEs of India to better research about the market, adapt the preferences of the consumers and choose the right pricing decision.

INTRODUCTION

Background of Study

The study's focus is on "small and medium-sized businesses in India and examines how consumer preferences and behaviour affect product price and market segmentation". Tsao et al. (2019) stated that customer choices or preferences in the Indian market are renowned for their diversity, featuring an extensive variety of social, cultural and economic elements influencing purchasing choices. For SMEs to properly target their goods and increase profitability, it is essential to comprehend these aspects and how they affect pricing methods and market segmentation (Su et al. 2019).

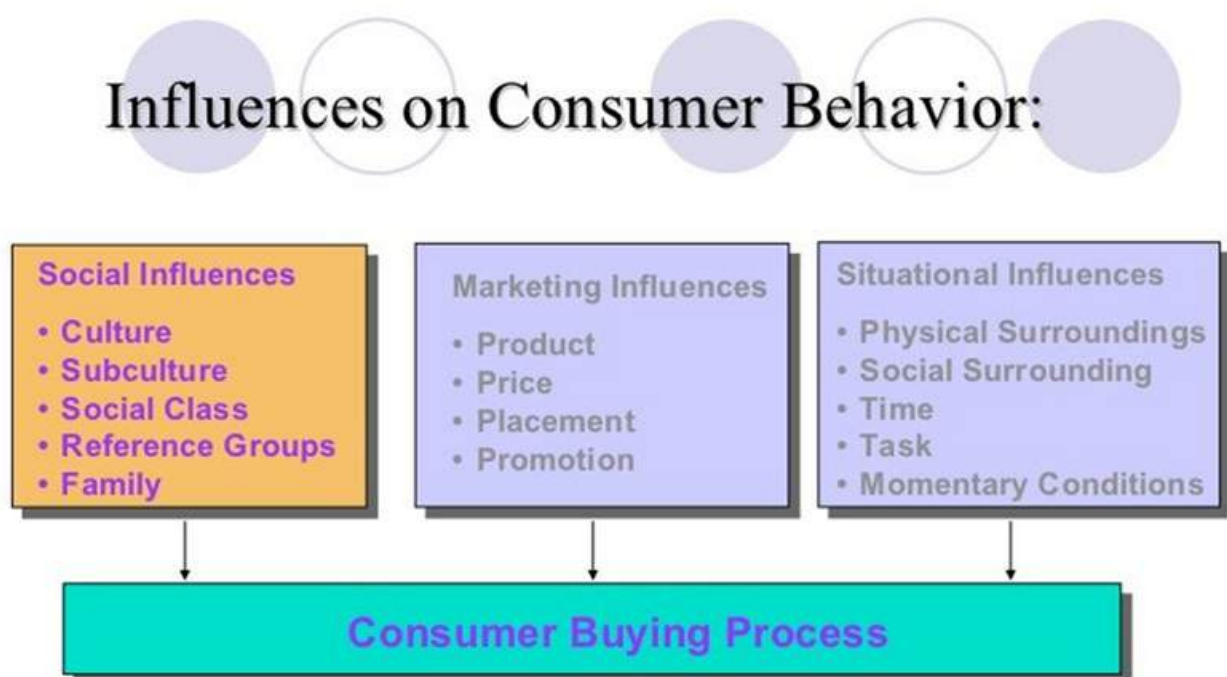
The SME sector of India, which accounts for around 45% of its industrial output and exports 40%, makes a considerable economic contribution to the nation (Press Information Bureau, 2020). The top SME companies in India are – "Cool Caps Industries Limited", "Jay Jalaram Technologies Ltd", "Contain Technologies Ltd" and so on (Chittorgarh, 2023). By examining this connection, the research hopes to offer insightful analysis and helpful suggestions for SMEs looking to improve their competitiveness and thrive in the Indian market.

Problem Statement

The goal of this study is to determine how much customer behaviour and preferences affect SMEs in India's pricing of goods and segmentation of the market. Despite the importance of the SME sector to the Indian economy, little study has been done on how SMEs recognize and cater to customer preferences when establishing prices and dividing their target audiences (Stampa et al. 2020). By examining the effects of customer behaviour on price choices and market segmentation tactics used by SMEs, this research aims to close this gap in knowledge. The results will help us understand the difficulties SMEs experience in matching their pricing approaches with customer preferences, which will eventually provide us insights into how to increase their level of competition and market share (Zhao et al. 2021).

Aims and Objectives

This study paper's aim is "to examine how customer behaviour and preferences affect the market segmentation and product pricing approaches used by SMEs in India".



Influences on consumer behaviour (Source: ProiDeators Media, 2018)

Research Objectives

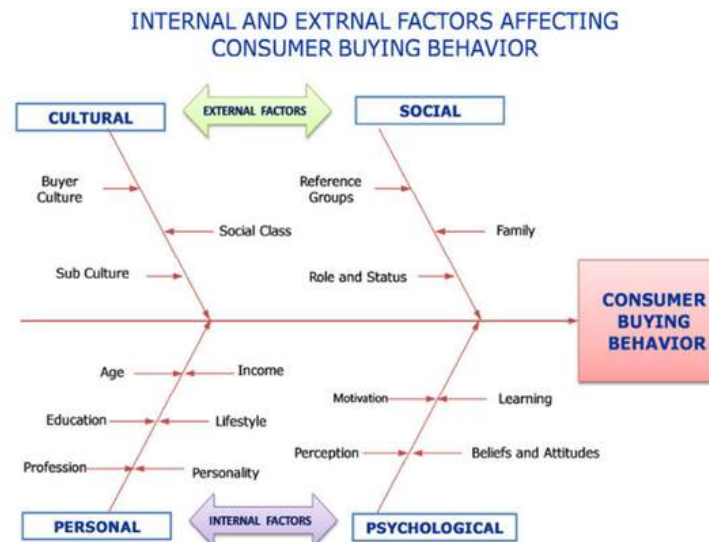
- To evaluate how consumer tastes and behaviour affect the decisions Indian SMEs make about how much to charge for their products
- To investigate the connection between customer preferences and the market segmentation tactics used by SMEs in India
- To make suggestions on how SMEs in India may successfully match their pricing market segmentation approaches with buyer preferences and behaviour

Research Questions

- How does customer behaviour and preferences impact the pricing decision of SMEs in India?
- What is the relation between market segmentation and consumer preferences approaches adopted by SMEs?
- What are the relevant solutions Indian SMEs can optimize for market segmentation and pricing depending on consumers?

Rationale

Current evidence that emphasizes the significance of knowing client habits and tastes for SMEs in India supports the thesis of this research paper. By 2030, consumer expenditure in India is expected to exceed \$6 trillion, driven by shifting demographics, increased disposable incomes, and shifts in lifestyles, according to recent studies (The Economic Times, 2022). However, SMEs encounter difficulties in successfully addressing this varied and quickly expanding client base. For SMEs to maximize their strategy and acquire a competitive edge, they must comprehend how customer behaviour affects the cost of goods and market division (Kim et al. 2020).



Factors affecting consumer behaviour
(Source: Al-Salamin and Al-Hassan, 2016)

LITERATURE REVIEW

Introduction

A literature review is one of the major chapters of a research study because, through this chapter, a researcher tries to impose the research objectives with the help of relevant articles or literature. Based on existing literature, research conducts this study and ensures that it is constructed critically with relevant evidence. Theoretical approaches are also used to understand the research topic more clearly and identify the literature gap and construct a conceptual framework on the topic.

Reviews of Objectives

1. Consumer behaviour and preferences affected pricing decision of Indian SMEs

According to Liu et al. (2019), the pricing choices taken by Indian SMEs are heavily influenced by consumer preferences and behaviour. To maintain competitiveness and increase profitability, SMEs must comprehend and accommodate these .

preferences. Current data offers insightful information on how customer behaviour affects pricing tactics in India. Opinions and preferences among Indian consumers are always changing. According to a recent McKinsey survey, Indian consumers are getting more savvy and value-conscious (Rondoni et al 2020). When making purchases, they give importance to elements like reputation, quality of the company, and cost. Yan et al. (2020) stated that the pricing war in India has become stronger due to the growth of e-commerce and online purchasing. The emergence of multiple internet platforms has made it simple for customers to compare rates and select the most reasonable choices.

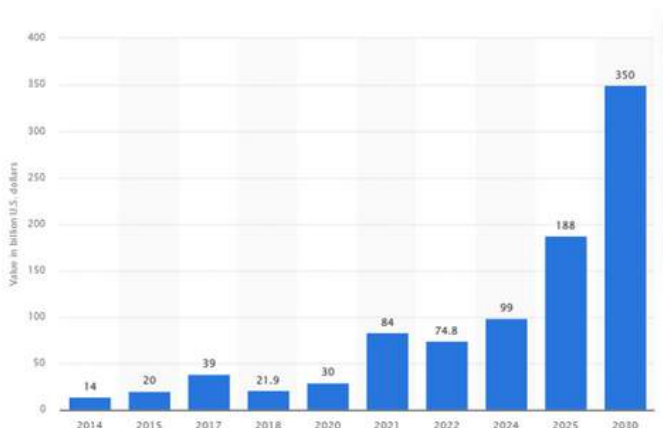
Statista statistics showing that the Indian e-commerce business is anticipated to reach \$350 billion by the year 2030 lends support to this trend (A. Minhas, 2023). To draw in and keep consumers, SMEs must consider the competitive environment and price considerations for the consumer when deciding how much to charge for their products. Additionally, geographical differences in customer behaviour and tastes are quite important. Because of India's unique socioeconomic, cultural, and linguistic terrain, different areas have different consumer expectations.

2. Connection between the Strategies of market segmentation and consumer preferences of SME Companies

Marisa et al. (2020) observed that studying consumer behaviour is crucial for efficient targeting and positioning, as evidenced by research on the relationship between consumer needs and marketplace segmentation strategies utilized by SMEs in India. Data from the present day sheds light on this link. Indian customers have a wide range of tastes, which are influenced by things like culture, wealth, and demography. For instance, a Nielsen survey showed that Indian customers give reliability, value for money, and accessibility top priority while making purchases (Silva et al. 2019).

Based on these choices, SMEs must coordinate their market division strategies to target certain customer categories. For instance, they may create distinct marketing plans to address the tastes of urban millennials as opposed to those in rural areas.

The rise of online shopping and digital transformation has changed how customers interact with companies and market decisions about what to buy. In 2021, there were over 624 million online users in India, estimated by the "Internet and Mobile Association of India" (Kemp, 2021). SMEs are efficiently identifying and segmenting their target markets by utilizing digital channels. They are using social media information, internet data analytics, and feedback from clients to comprehend customer needs and create tailored marketing strategies. Additionally, customers in India have adopted international patterns and tastes as a consequence of the effects of globalization. They look for products and encounters that meet global standards (Choi et al. 2020).



Market size of e-commerce industry in India (Source: A. Minhas, 2023)

As a result, SMEs are changing their market division strategies to reflect this trend. To attract customers, they are promoting their items as aspirational, luxurious, or internationally influenced by the target segments of the customers who consider those attributes.

3. Suggestions to match pricing market segmentation approaches with buyer preferences and behaviour

SMEs in India may want to take the following advice into consideration to properly align their pricing and market division tactics with customer behaviour and preferences:

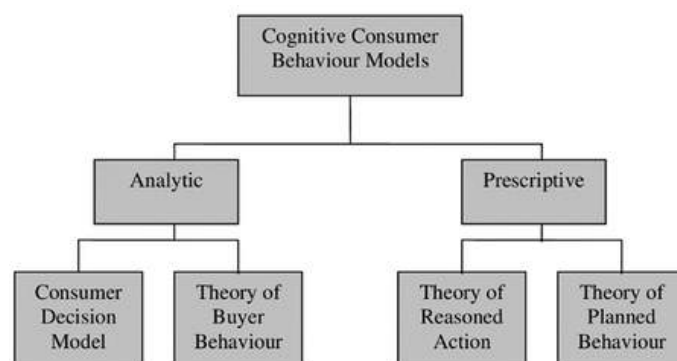
- **Conduct market research:** To learn more about customer interests, behaviour, and pricing empathy, SMEs should engage in market research. Focus groups, surveys, or the examination of consumer information can all be used for this (Casas-Rosal et al. 2023). SMEs may tailor their segmentation and pricing strategies to the individual requirements, choices, and capacity to spend of their intended consumer groups by analyzing these factors.
- **Use of data analytics:** Utilizing data analytics tools can help SMEs examine customer data and spot trends in consumer behaviour. Identifying important client categories, their needs, and their financial sensitivity may be made easier thanks to this (Ahani et al. 2019). SMEs may modify their strategies of market segmentation and pricing to successfully target and interact with particular client groups' by employing data-driven insights.
- **Offer personalized pricing:** Using tailored pricing techniques can improve client loyalty as well as satisfaction. SMEs can use consumer data to offer personalized pricing depending on client preferences, past purchases, or level of loyalty (Alt et al. 2021). This may be accomplished with loyalty programs, individualized price cuts, or focused advertisements. Customers that receive tailored prices feel valued and are more inclined to pay.



Strategies for market segmentation
(Source: Villegas, 2023)

Theoretical Approaches

Consumer behaviour theory: Aswari (2019) stated that this strategy focuses on comprehending the social, cultural and psychological elements that affect the choices made by consumers. The theory investigates how people view, assess, and choose goods and services determined by their requirements, attitudes and preferences (Spangenberg and Lorek, 2019). Recognizing how customer choices and behaviour affect market segmentation and product pricing approaches is helpful.

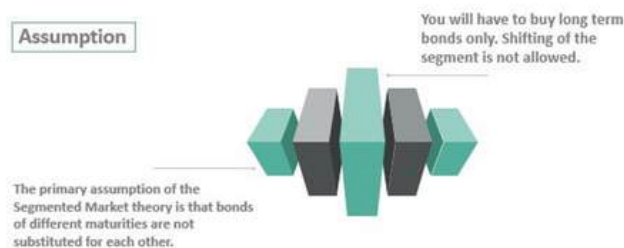


Consumer behaviour theory
(Source: Bray, 2008)

Segmented market theory: According to Ren et al. (2021), this theory is a diverse market should be divided into discrete, homogenous groups based on shared requirements, wants, and preferences. It entails locating and focusing on particular customer groups that exhibit similar characteristics or habits. With this strategy, SMEs may customize their marketing initiatives, pricing plans, and product offers to satisfy the particular needs of each group

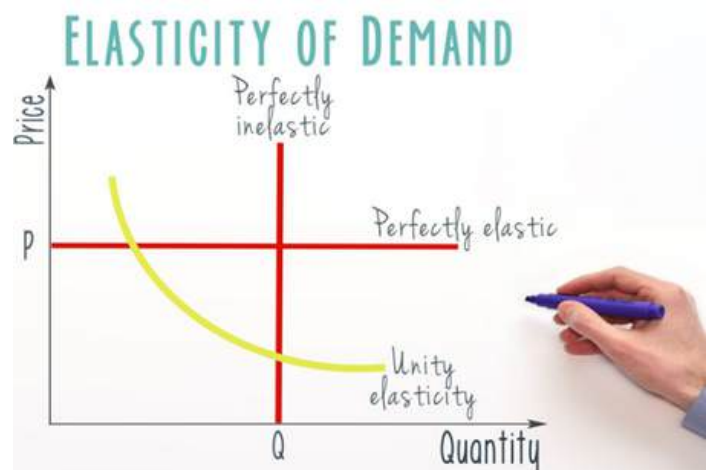
(Brand et al. 2020). By catering to the unique requirements of various customer groups, this theory assists SMEs in allocating resources more efficiently, improving customer satisfaction, and growing their market share.

Segmented Market Theory



Segmented market theory (Source: Sinha, 2023)

Theory of price elasticity of demand: de Rassenfosse (2020) noted that this theory indicates how responsively consumer demand responds to price fluctuations. It sheds light on how market segmentation approaches and customer behaviour might be impacted by changes in the pricing of goods. In this situation, Indian SMEs must carefully take into account how sensitive their target market groups are to pricing. SMEs can modify their pricing strategy to increase revenue and market share by knowing the “price elasticity demand for their products” (Tan et al. 2022). For SMEs looking to improve their pricing strategy and efficiently target the Indian market, this theoretical structure might offer insightful information.

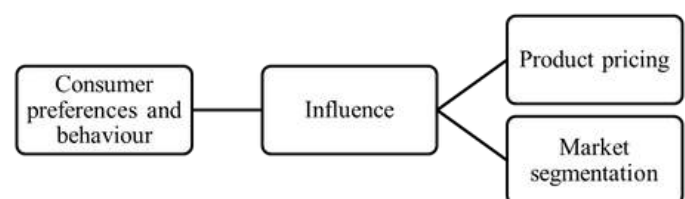


Theory of price elasticity of demand (Source: Jupiter Team, 2022)

Literature gap

The limited examination of “how customer behaviour and preferences directly affect product pricing decisions and market segmentation strategies of SMEs in India” constitutes a gap within the literature of this paper. There is a lack of targeted studies that look at the particular approach of Indian SMEs and their efforts to match price and market divisions with customer preferences, despite the fact that information on consumer choices and pricing methods, in general, is already available (Yarnold et al. 2021). By offering analyses and suggestions that are specifically suited to the difficulties and market dynamics experienced by SMEs doing business in India, this study seeks to close this knowledge gap.

Conceptual framework



Conceptual framework (Source: Self-Created)

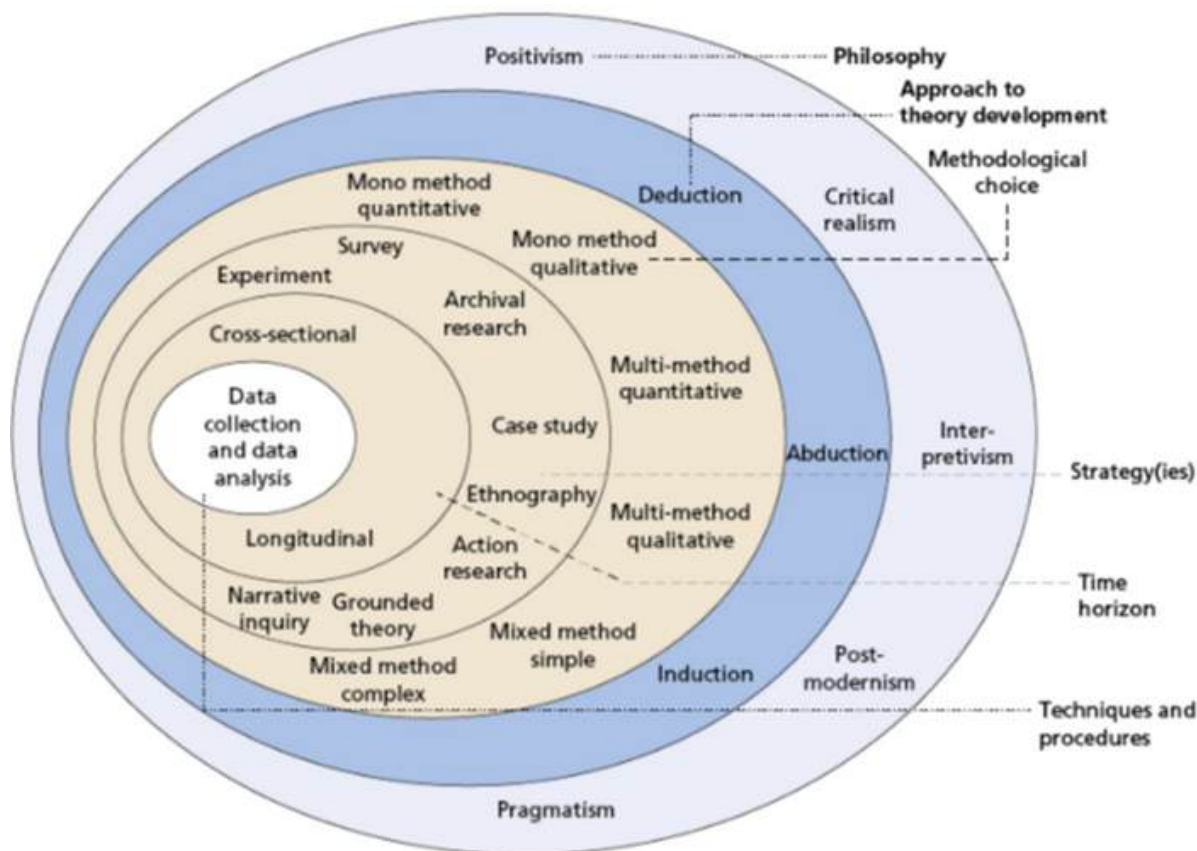
RESEARCH METHODOLOGY

Research methods

Both “primary and secondary research” methodologies are used in this study. Lê and Schmid (2022) observed that in “primary research”, data is gathered by interviews, surveys or observations directly from Indian SMEs and customers. The current time and particular setting data that primary research gives improves the study’s relevance and dependability. Analysis of already published articles, reports, and studies on customer pricing tactics, behaviour, and market division in the Indian SME is known as “secondary research” (Saunders et al. 2019). “Secondary research” aids in the discovery of research gaps, the verification of results, and the provision of a more comprehensive theoretical foundation for the subject. It enables the blending of “qualitative and quantitative data”, enhancing the study’s validity and dependability.

Research philosophy

Within this research, the “positivism philosophy” is employed because it stresses the objectives and empirical examination of how customer behaviour and preferences affect the price of examples and market division in Indian SMEs. According to Marsonet (2019), the emphasis of positivism is on empirical proof, quantitative information, and causal connections. This research implemented positivism methodology in order to collect quantifiable data with surveys, evaluate it statistically, and reach generalizable findings. This approach ensures neutrality and strengthens the dependability of the findings by enabling a methodical and thorough assessment of the research issue (Hammersley, 2019).



Research onion

(Source: Saunders et al. 2019)

Research approach

This research uses the “deductive approach” since it begins with thoughts, ideas, and models that already exist about customer preferences, market segmentation and pricing noted by Tsai (2019). The goal of the study is to verify and confirm pre-existing information and conceptual frameworks in the specific setting of Indian SMEs. The research establishes research procedures to gather data that might support or contradict the theoretical claims utilizing “deductive reasoning”. This strategy guarantees organized and methodical research, enabling the creation of new information while expanding upon preexisting beliefs (Pandey, 2019). The study uses “deductive philosophy” in order to advance theoretical knowledge of how customer behaviour affects prices and market segmentation in Indian SMEs.

Research design

In order to thoroughly characterize and assess the “impact of customer behaviour and preferences on product pricing and market segmentation in Indian SMEs”, this research conducted the “descriptive research design”. Siedlecki (2020) observed that with a focus on data collection and analysis to explain the traits, patterns, and interactions among factors, this design seeks to accurately represent the current situation. Exploring actual phenomena in the context of the natural world is possible through descriptive study. The study may offer a thorough and in-depth insight into customer attitude, pricing methods, and market segmentation approaches used by SMEs in the Indian market by using this approach (Doyle et al. 2020). It makes it easier for researchers to gather “qualitative and quantitative data”, allowing them to illustrate and analyze the dynamics and details of the study issue.

Data collection and data analysis

For “primary data collection”, the online survey is the best solution and for the survey, a questionnaire was prepared for the participants through Google Forms and shared the form

with the participants. However, the participants are the SMEs of the Indian market, including small retail and other companies, and the size of participants is 100; the “probability sampling technique” was used because it is time efficient and cost-effective and easy (Ball, 2019). For the analysis of the “primary data,” a graphical representation was used and interpreted responses as per the research study. For the secondary data, this study focuses on secondary sources, including journals, articles, news articles and magazines and for the analysis; “thematic analysis” is used by focusing on research questions (Lochmiller, 2021). To construct this research, all ethical considerations include honesty, integrity, security and confidentiality maintained with collected data. After six months of the completion of the research, all data will be discarded automatically those are stored in password-protected software of the university library.

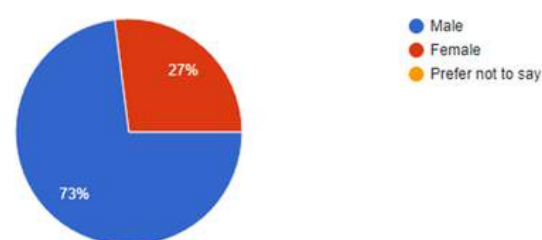
RESULTS AND FINDINGS

Introduction

For this research study, quantitative and qualitative both data are identified. The quantitative data was collected through an online survey and questionnaire and are going to be analyzed through graphical representation. On the other hand, qualitative data was collected through secondary sources and analyzed with thematic analysis.

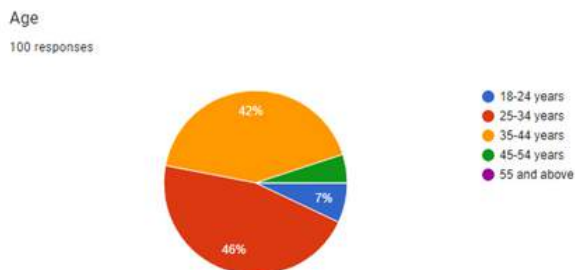
Primary data analysis

Gender
100 responses



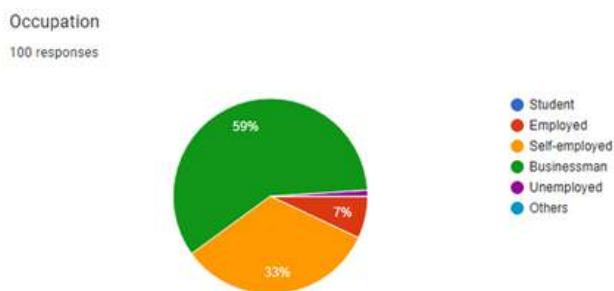
Question 1
(Source: Google Form)

This graph is based on the gender of the participants, and it indicated that 73% of participants are male, whereas 27% are female. More than female participants, males, participated in this survey.



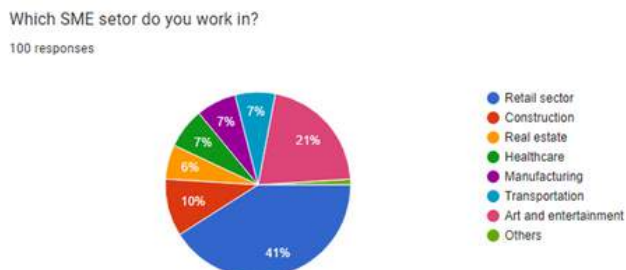
Question 2
(Source: Google Form)

This graph indicated that 46% of participants are 25-34 years old, 42% of participants are 35-44 years old, 7% are 18-24 years and 5% are 45-54 years old.



Question 3
(Source: Google Form)

This graph is about the occupation of the participants. 59% of participants are businessmen, 33% of participants are self-employed, 7% of participants are employed, and 1% are unemployed.



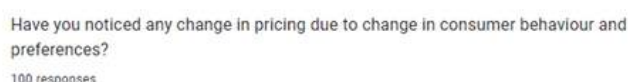
Question 4
(Source: Google Form)

This graph is about the SME sector where the participants work in. It shows that 41% of participants are from the retail sector, 21% are from art and entertainment, 10% are from the construction sector, 7% of participants are from transportation, manufacturing, healthcare, and 6% are from the real estate sector and 1% of participants belong to others.



Question 5
(Source: Google Form)

From this graph, it can evaluate that 57% of participants said that the pricing strategy that they follow is a “cost-based pricing strategy” for their products or services. On the other hand, 28% of participants consider “value-based pricing”, 9% of participants are “competitor-based pricing,” and 6% of participants are others.

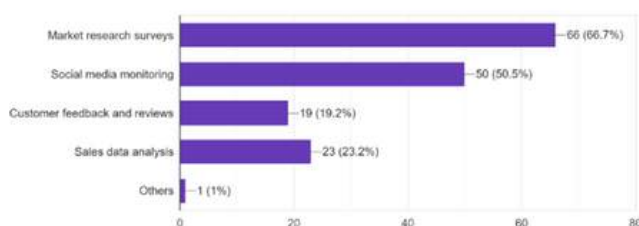


Question 6
(Source: Google Form)

This graph is about the price change due to changed consumer preferences and behaviour, and in this case, 70% of participants said yes, 19% of participants said no, and 11% of participants said maybe. It indicated that changing the price of the products or services depends on the changing preferences and behaviour of the consumers.

How do you gather information about your target consumer's behaviour and preferences?

99 responses

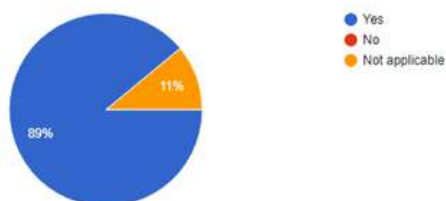


Question 7 (Source: Google Form)

This graph is about the way SMEs collect information from consumers' preferences and behaviour. 66.7% of participants choose "market research surveys", 50.5% of participants choose "social media monitoring", 23.2% of participants choose "sales data analysis", 19.2% of participants choose "customer feedback and reviews," and only 1% of participants choose others.

Have you customized your product offerings based on different market segments?

100 responses

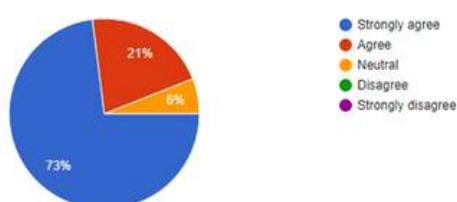


Question 8 (Source: Google Form)

It asked the participants whether they ever customized their products based on the various market segments or not. On this question, 89% of participants said yes, and 11% of participants said not applicable. It indicated that most of the SMEs of India customize the offering products as per the market segments of the products.

Do you think you consider consumer preferences during the decision of product differentiation strategies?

100 responses

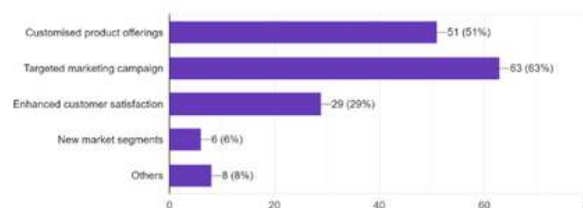


Question 9 (Source: Google Form)

This graph is based on the consideration of the SMEs of the consumer preferences during the decision of the strategies of product differentiation. In this context, 73% of participants strongly agree with this statement, whereas 21% agree and 6% are neutral. It stated SMEs of India consider consumer preferences when they adopt the strategies of product differentiation.

What opportunities do you see in leveraging consumer behaviour and preferences to drive growth and profitability?

100 responses



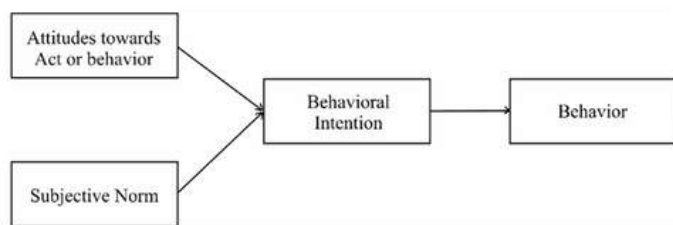
Question 10 (Source: Google Form)

This graph is about the opportunities of leveraging consumer behaviour and preferences to make growth and profitability in the business. 51% of participants chose the opportunity of "customized product offerings", 63% of participants chose "targeted marketing campaign", 29% of participants chose "enhanced customer satisfaction", 6% chose "new market segments," and 8% chose others.

Secondary data analysis

Theme 1: Customers' choices and behaviour have a big influence on how SMEs in India set their prices. The "Theory of Reasoned Action" is one pertinent theory that accounts for this impact. According to Ajzen (2020), client attitudes and arbitrary norms have an impact on how they behave. Customer attitudes are a reflection of how they view a product or service generally, taking into account elements such as value, quality and image of the company. Subjective norms are believed to have a social and significant impact on a person's choice to make a purchase. "Customer preferences and behaviours" are important factors in pricing (Hagger, 2019). Customers are more inclined to spend a higher price on a product if they believe it offers good value and fits with their

tastes. On the other side, clients that value cost or are extremely price sensitive could choose less expensive options. Additionally, consumer habits and tastes have an effect on how SMEs segment their markets. SMEs may create specialized pricing strategies for every client group by establishing separate customer segments depending on those customers' interests and behaviour (Xiao, 2020). For instance, companies like Reliance Retail, Future Group, Trent, Titan and other retailers expanded or selling their products in the Indian market as well as in the international market (Singh, 2023).



Theory of Reasoned Action

(Source: Al-Suqri and Al-Kharusi, 2015)

Theme 2: To understand the relationship between market segmentation and customer choice methodologies used by SMEs, the “Theory of customer choice” and “Theory of Price Discrimination” can be applied here.

According to Qaderet al. (2022), “Theory of Consumer Choice” is based on the concept that customers have a range of preferences and levels of willingness to pay for goods and services. SMEs may discover and target certain consumer categories based on their unique interests to market segmentation (Seele et al. 2021). SMEs may improve their likelihood of acquiring and delighting consumers, which will ultimately result in better revenue and sales, by adjusting their marketing strategies and product offers to reflect the tastes of various groups. Choi et al. (2023) stated that “The Theory of Price Discrimination” is also important for comprehending how market segmentation and customer preferences relate to one another.

Theme 3: Through the following pertinent solutions, Indian SMEs can improve “their market segmentation and pricing strategies based on consumer preferences”:

- SMEs may adjust their rates to different consumer segments depending on their willingness and preferences to pay by employing price differentiation approaches (Ali and Anwar, 2021).
- To target certain client categories, Indian SMEs might use customer data and customized marketing strategies.
- SMEs can respond to certain customer preferences by offering customized goods or services (Elliott et al. 2021).
- Regular market research enables SMEs to learn about customer tastes, trends, and purchasing patterns.
- Indian SMEs must maintain flexibility and modify their pricing and segmentation of the market strategies in response to shifting customer preferences (Shabbir et al. 2020).

CONCLUSION

Summary of the study

This study investigates how customer preferences and behaviours affect market segmentation and product pricing approaches used by Indian SMEs. The study offers useful insights into the difficulties faced by SMEs in matching their pricing as well as market penetration with customer preferences using the “primary and secondary methods”. The results underline how crucial it is to comprehend customer behaviour, make use of data analytics, and implement customized and value-based pricing methods. This will improve their level of competition and market performance in India's changing business environment.

Recommendations

From the summary of the study, the major research approaches and strategies are identified those are used in this research. Apart from this, if this research can focus on interview

and observations, then it will be more effective for this study to collect information regarding the pricing of products and market segmentation regarding consumer preferences and behaviours. Here, the main focus is Indian SMEs and all data collected from the SMEs. It will be better if data is collected from the customers as well as SMEs because it is also important to understand what the customers think about it.

Future study

The long-term effects of this research study might be explored by future researchers. To evaluate the efficiency and viability of the suggested techniques over time, longitudinal research would be helpful. Investigating how cutting-edge technologies like machine learning, big data analytics and artificial intelligence may be used to comprehend and forecast customer behaviour may also yield insightful results (Azimovna et al. 2022). Furthering the knowledge would be to investigate how cultural elements, online reviews, and social media affect customer preferences and price choices.

Limitations

This research study has a number of constraints to take into account. The research's initial emphasis on SMEs in India restricts the findings' applicability to larger businesses or other nations. Second, the study depends on data provided by participants, which might contain errors or biases in responses. Thirdly, the study mostly uses cross-sectional data, which makes it difficult to draw conclusions about causal linkages or monitor changes over time. Additionally, due to the limits of the selected research methodology, the study may not fully represent the complexity of customer behaviour and preferences. Finally, the study does not take into consideration outside variables that can affect price choices and market segmentation approaches, like current economic circumstances or modifications to regulations.

Self reflection

When I think back on the research study, I find that it is consistent with my own professional experience, especially when it comes to the setting of SMEs in India. To make this reflection more accurate, I would like to apply the "Rolfe Reflective Model," which is based on three questions "What", "So what", and "Now what". I can connect to the importance of knowing "consumer preferences and behaviour" being an entrepreneur who has negotiated the difficulties of "product pricing and targeting" particular market niches. The first stage is "what," and as per this question, I have conducted this research study to improve my research skill.

The research's emphasis on how customer behaviour affects "market segmentation and product pricing" is in line with the difficulties I ran into when deciding on prices. It emphasizes how crucial it is to take into account elements like perceived values, price sensitivity, and consumer preferences when coming up with the best pricing strategies.

The second stage is "So what", and from this research, I have learned a lot of things that I can apply to my future profession. The use of "primary and secondary research" techniques also resonates with my prior work getting first-hand information from clients and performing market research to acquire insights. Analysis of both "qualitative and quantitative data" is combined to provide a more complete picture of the changing Indian consumer market.

The final stage is "Now what," and if I get the opportunity or second chance, then I can do this research in a better way. The study's focus is on "matching price and market segmentation strategies with consumer behaviour" and emphasizes the necessity for companies, especially SMEs, to adapt and satisfy changing "consumer preferences". It emphasizes how important it is to use "market segmentation", "data analytics," and "personalized pricing" to stay competitive. As a whole, the findings from this study have helped me understand the complex connection between customer behaviour, price choices, and market segmentation better.

Bibliography

1. A. Minhas (2023) India: E-commerce market size 2030, Statista. Available at: <https://www.statista.com/statistics/792047/india-e-commerce-market-size/> (Accessed: 27 May 2023).
2. Ahani, A., Nilashi, M., Ibrahim, O., Sanzogni, L. and Weaven, S., (2019). Market segmentation and travel choice prediction in Spa hotels through TripAdvisor's online reviews. *International Journal of Hospitality Management*, 80, pp.52-77.
3. Ajzen, I., (2020). The theory of planned behavior: Frequently asked questions. *Human Behavior and Emerging Technologies*, 2(4), pp.314-324.
4. Ali, B.J. and Anwar, G., (2021). Marketing Strategy: Pricing strategies and its influence on consumer purchasing decision. Ali, BJ, & Anwar, G.(2021). Marketing Strategy: Pricing strategies and its influence on consumer purchasing decision. *International journal of Rural Development, Environment and Health Research*, 5(2), pp.26-39.
5. Al-Salamin, H. and Al-Hassan, E., (2016). The impact of pricing on consumer buying behavior in Saudi Arabia: Al-Hassa case study. *European Journal of Business and management*, 8(12), pp.62-73.
6. Al-Sugri, M.N. and Al-Kharusi, R.M., (2015). Ajzen and Fishbein's theory of reasoned action (TRA)(1980). In *Information seeking behavior and technology adoption: Theories and trends* (pp. 188-204). IGI Global.
7. Alt, M.A., Săplăcan, Z., Benedek, B. and Nagy, B.Z., (2021). Digital touchpoints and multichannel segmentation approach in the life insurance industry. *International journal of retail & distribution management*, 49(5), pp.652-677.
8. Aswari, A., (2019). How digital technology driven millennial consumer behaviour in Indonesia. *Journal of Distribution Science*, 17(8), pp.25-34.
9. Azimovna, M.S., Ilkhomovna, U.D. and Shokhrukhovich, U.F., (2021). The Concept of Marketing Policy in Trade and Service Enterprises. *Central Asian Journal Of Innovations On Tourism Management And Finance*, 3(8), pp.1-5.
10. Ball, H.L., (2019). Conducting online surveys. *Journal of human lactation*, 35(3), pp.413-417.
11. Brand, C., Schwanen, T. and Anable, J., (2020). 'Online Omnivores' or 'Willing but struggling'? Identifying online grocery shopping behavior segments using attitude theory. *Journal of Retailing and Consumer Services*, 57, p.102195.
12. Bray, J.P., (2008). *Consumer behaviour theory: approaches and models*. Casas-Rosal, J.C., Segura, M. and Maroto, C., (2023). Food market segmentation based on consumer preferences using outranking multicriteria approaches. *International Transactions in Operational Research*, 30(3), pp.1537-1566.

Bibliography

13. Chittorgarh (2023) *Top 10 SME IPO in India 2022 at BSE SME and NSE EMERGE, Top 10 SME IPO in India 2022 at BSE SME and NSE Emerge. Available at: <https://www.chittorgarh.com/report/top-10-sme-ipo-by-performance-yearly-bse-nse/14/?year=2022> (Accessed: 27 May 2023).*

14. Choi, H., Ahn, J. and Woo, J., (2020). *Will there Be disruptive innovation? Identifying profitable niche segments and product designs for small-and medium-sized companies and startups. IEEE Transactions on Engineering Management*, 69(5), pp.2057-2072.

15. Choi, S., Song, M. and Jing, L., (2023). *Let your algorithm shine: The impact of algorithmic cues on consumer perceptions of price discrimination. Tourism Management*, 99, p.104792.

16. de Rassenfosse, G., (2020). *On the price elasticity of demand for trademarks. Industry and Innovation*, 27(1-2), pp.11-24.

17. Doyle, L., McCabe, C., Keogh, B., Brady, A. and McCann, M., (2020). *An overview of the qualitative descriptive design within nursing research. Journal of Research in Nursing*, 25(5), pp.443-455.

18. Elliott, M., Galeotti, A., Koh, A. and Li, W., (2021). *Market segmentation through information. Available at SSRN 3432315.*

19. Hagger, M.S., (2019). *The reasoned action approach and the theories of reasoned action and planned behavior.*

20. Hammersley, M., (2019). *From positivism to post-positivism: Progress or digression?. Teoria Polityki*, (3), pp.175-188.

21. Jupiter Team (2022) *What is price elasticity of demand? - definition, formula, Examples & Factors, Personal Finance, FinTech Updates from Jupiter. Available at: <https://jupiter.money/resources/understanding-price-elasticity-of-demand/> (Accessed: 27 May 2023).*

22. Kemp, S. (2021) *Digital in India: All the statistics you need in 2021 - DataReportal – global digital insights, DataReportal. Available at: <https://datareportal.com/reports/digital-2021-india> (Accessed: 27 May 2023).*

23. Kim, D., Hong, S., Park, B.J. and Kim, I., (2020). *Understanding heterogeneous preferences of hotel choice attributes: Do customer segments matter?. Journal of Hospitality and Tourism Management*, 45, pp.330-337.

24. Lê, J.K. and Schmid, T., (2022). *The practice of innovating research methods. Organizational Research Methods*, 25(2), pp.308-336.

Bibliography

25. Liu, Z., Feng, J. and Liu, B., 2019. Pricing and service level decisions under a sharing product and consumers' variety-seeking behavior. *Sustainability*, 11(24), p.6951.

26. Lochmiller, C.R., (2021). *Conducting Thematic Analysis with Qualitative Data*. *Qualitative Report*, 26(6).

27. Marisa, F., Ahmad, S.S.S., Yusof, Z.I.M., Hunaini, F. and Aziz, T.M.A., (2019). Segmentation model of customer lifetime value in small and medium enterprise (SMEs) using K-means clustering and LRFM model. *International Journal of Integrated Engineering*, 11(3).

28. Marsonet, M., (2019). Philosophy and logical positivism. *Academicus International Scientific Journal*, 10(19), pp.32-36.

29. Pandey, J., (2019). Deductive approach to content analysis. In *Qualitative techniques for workplace data analysis* (pp. 145-169). IGI Global.

30. Press Information Bureau (2020) SMEs must strive to produce world class products; Gem to Handhold Women Entrepreneurs in SME Manufacturing - Piyush Goyal, Press Information Bureau. Available at: [https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1598636#:~:text=The%20MSME%20sector%20in%20India,40%25%20of%20the%20country's%20exports.\(Accessed:27May2023\).](https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1598636#:~:text=The%20MSME%20sector%20in%20India,40%25%20of%20the%20country's%20exports.(Accessed:27May2023).)

31. Proideators Media (2018) What psychological techniques marketers use to influence consumer behavior?, Proideators. Available at: <https://www.proideators.com/blog/influencer-marketing/what-psychological-techniques-marketers-use-to-influence-consumer-behavior/> (Accessed: 27 May 2023).

32. Qader, K.S., Hamza, P.A., Othman, R.N., Anwer, S.A., Hamad, H.A., Gardi, B. and Ibrahim, H.K., (2022). Analyzing different types of advertising and its influence on customer choice. *International Journal of Humanities and Education Development (IJHED)*, 4(6), pp.8-21.

33. Ren, S., Hao, Y. and Wu, H., (2021). Government corruption, market segmentation and renewable energy technology innovation: Evidence from China. *Journal of Environmental Management*, 300, p.113686.

34. Rondoni, A., Asioli, D. and Millan, E., (2020). Consumer behaviour, perceptions, and preferences towards eggs: A review of the literature and discussion of industry implications. *Trends in Food Science & Technology*, 106, pp.391-401.

35. Saunders, M., Lewis, P. and Thornhill, A., (2019). *Research Methods for Business Students Eight Edition*. *QualitativeMarket Research: An International Journal*.

36. Seele, P., Dierksmeier, C., Hofstetter, R. and Schultz, M.D., (2021). Mapping the ethicality of algorithmic pricing: A review of dynamic and personalized pricing. *Journal of Business Ethics*, 170, pp.697-719.

Bibliography

37. Shabbir, M.S., Bait Ali Sulaiman, M.A., Hasan Al-Kumaim, N., Mahmood, A. and Abbas, M., (2020). *Green marketing approaches and their impact on consumer behavior towards the environment—A study from the UAE. Sustainability*, 12(21), p.8977.

38. Siedlecki, S.L., (2020). *Understanding descriptive research designs and methods. Clinical Nurse Specialist*, 34(1), pp.8-12.

39. Silva, J., Varela, N., López, L.A.B. and Millán, R.H.R., (2019). *Association rules extraction for customer segmentation in the SMEs sector using the apriori algorithm. Procedia Computer Science*, 151, pp.1207-1212.

40. Singh, S. (2023) *Top 13 retail companies in India in 2023, 91Squarefeet. Available at: <https://www.91squarefeet.com/retail-companies-in-india/> (Accessed: 27 May 2023).*

41. Sinha, S. (2023) *Segmented market theory - definition, examples, how it ... - wallstreetmojo, What is Segmented Market Theory? Available at: <https://www.wallstreetmojo.com/segmented-market-theory/> (Accessed: 27 May 2023).*

42. Spangenberg, J.H. and Lorek, S., (2019). *Sufficiency and consumer behaviour: From theory to policy. Energy Policy*, 129, pp.1070-1079.

43. Stampa, E., Schipmann-Schwarze, C. and Hamm, U., (2020). *Consumer perceptions, preferences, and behavior regarding pasture-raised livestock products: A review. Food Quality and Preference*, 82, p.103872.

44. Su, C.H., Tsai, C.H., Chen, M.H. and Lv, W.Q., (2019). *US sustainable food market generation Z consumer segments. Sustainability*, 11(13), p.3607.

45. Tan, H., Yan, W., Ren, Z., Wang, Q. and Mohamed, M.A., (2022). *A robust dispatch model for integrated electricity and heat networks considering price-based integrated demand response. Energy*, 239, p.121875.

46. *The Economic Times (2022) How smes can transcend international boundaries with ecommerce, The Economic Times. Available at: <https://economictimes.indiatimes.com/small-biz/sme-sector/how-smes-can-transcend-international-boundaries-with-ecommerce/articleshow/95315066.cms> (Accessed: 27 May 2023).*

47. Tsai, K.J., (2019). *Corpora and dictionaries as learning aids: inductive versus deductive approaches to constructing vocabulary knowledge. Computer Assisted Language Learning*, 32(8), pp.805-826.

48. Tsao, Y.C., Raj, P.V.R.P. and Yu, V., (2019). *Product substitution in different weights and brands considering customer segmentation and panic buying behavior. Industrial Marketing Management*, 77, pp.209-220.

Bibliography

49. Villegas, F. (2023) *Market segmentation: What it is, types & examples*, QuestionPro. Available at: <https://www.questionpro.com/blog/what-is-market-segmentation/> (Accessed: 27 May 2023).

50. Xiao, M., (2020). *Factors influencing eSports viewership: An approach based on the theory of reasoned action*. *Communication & Sport*, 8(1), pp.92-122.

51. Yan, B., Chen, X., Cai, C. and Guan, S., (2020). *Supply chain coordination of fresh agricultural products based on consumer behavior*. *Computers & Operations Research*, 123, p.105038.

52. Yarnold, J., Banihashemi, S., Lemckert, C. and Golizadeh, H., (2021). *Building and construction quality: systematic literature review, thematic and gap analysis*. *International Journal of Building Pathology and Adaptation*.

53. Yenipazarli, A., (2019). *Incentives for environmental research and development: Consumer preferences, competitive pressure and emissions taxation*. *European Journal of Operational Research*, 276(2), pp.757-769.

54. Zhao, J., Xue, F., Khan, S. and Khatib, S.F., (2021). *Consumer behaviour analysis for business development*. *Aggression and Violent Behavior*, p.101591.

JUNIOR EDITORIAL BOARD

2022-23

EDITORIAL TEAM



AADIT GARG



AASTHI JAIN



ANIYA KOUL



DIYA THUKRAL



GIRISHA CHITKARA



NANDINI DABAS



PUNEET



RISHAB TICKOO



SHIVA YADAV



SHRUTI GHODKE



SIYA GUPTA



SONAKSHI MUNDRA



TANMAY SOOD



VANSHITA PAL

JUNIOR EDITORIAL BOARD

2022-23

DESIGN TEAM



AMAR SHARMA



ANIKA ARORA



ARNAV ROHILLA



RAJ SINGHAL



ISHAN RANJAN



NAMAN JAIN



NIDHI



PRIYA SINGH



VEER JINDAL



HARSH GOYAL



आलेख



SHRI RAM CONSULTING AND RESEARCH CENTRE

SHRI RAM COLLEGE OF COMMERCE

For feedback or queries, contact us at srcrc.srcc@gmail.com