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ANVESHA

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About the Journal

Anvesha-Journal of Management is an academic forum for encouragement, compilation and dissemination of research on various aspects of management and business practices. It includes original empirical research as well as theoretical and conceptual works related to the field of management. It also publishes case studies, critical evaluation of existing business models and theories, and reviews of the latest books relevant to the scope of the Journal.

Anvesha is a half-yearly refereed Journal. All papers go through blind review process by peers. Based on the reviewers' recommendations, highly competitive papers are considered for publication. The Journal is to provide a platform for discussion and debate, thus aiding towards development of new processes in Management Theory and Practice.

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EDITORIAL

Dear Readers,

Welcome to the sixteen volume of Anvesha - The Journal of Management. Thanks to the efforts of contributors and reviewers whose continuous inputs have helped us in traversing the journey of presenting the best thoughts of management and enhancing learning. We believe that the present issue proves to be interesting and thought-provoking by engaging readers in an exploration of effective management practices. Our editorial team is committed to publishing high-quality papers that make a meaningful contribution to the body of knowledge.

The present compilation of knowledge is coming from research papers of various domains aimed to bridge the gap between theory and practice. It presents a diverse array of topics, including indigenization, artificial intelligence (AI), and the defense industry, alongside innovation and technology development. Key themes such as cyber defense mechanisms, ethical considerations, and the Internet of Things (IoT) are explored, along with sustainable investing strategies like mutual funds, ESG practices, and trends in the Indian stock market. The compilation also addresses green finance, environmental policies, and the integration of policies aimed at promoting a green economy. Additionally, it highlights essential areas such as natural resource management, climate action, and ecological sustainability, as well as sustainable packaging within the fast-moving consumer goods (FMCG) sector. Furthermore, it explores into consumer behavior regarding recycling, stock market indices in the post-recession context, and the cointegration of gender and financial choices, focusing on the behavior of risk-takers and their investment strategies.

Artificial intelligence (AI) is becoming an indispensable part of our everyday lives, seamlessly integrating into various activities. The first paper of the collection attempted to provide insights on the transformative role of Artificial Intelligence (AI) in indigenization within the defence sector. The defence companies can innovate by using AI algorithms and machine learning techniques. This can help them in enhancing the accuracy, speed, and efficiency, reducing import dependency and fostering self-sufficiency. The full potential of AI in defence requires significant investments in research and development, infrastructure, and a highly skilled workforce. Ethical concerns such as data security, privacy, and transparency must also be addressed to ensure responsible AI implementation.

ESG investing, focusing on environmental, social, and governance factors, is gaining attention from various stakeholders. Investors are recognizing the importance of sustainable practices, ethical business conduct, and long-term value creation. ESG considerations are influencing investment decisions, as investors seek to align their portfolios with their values and contribute to a more sustainable future. The second paper focused on the growth of the ESG investment in the Indian Stock market and assessing the performance of ESG Investments. Further, the paper assesses the risk-adjusted performance of Indian ESG products available for investment and compare it with the performance of the broad market. The authors then attempted to determine whether these investment products have provided better returns than the market benchmark while assessing their riskiness.

The next paper focused on environmental laws and initiatives in India, analyzing the key factors driving climate change within policy discussions. In rural India, informal regulation has emerged as a complementary force shaping environmental practices. These community-driven mechanisms, fueled by actions like social pressure and negative media attention, have shown promise in tackling localized environmental challenges. Though limited in scope, community initiativesranging from demands for compensation to social ostracism or even threats of physical violencehave effectively targeted major polluters and raised awareness about environmental degradation at the grassroots level. The next paper proposes a model for advancing a green economy and sustainable development within the context of the selected villages.

There has been growing concerns about the overconsumption and consumer spending in recent years. This excessive consumption is often linked to environmental degradation, resource depletion, and social inequality. The next paper

focused on sustainable packaging within the FMCG sector, given the essential role these products play in households. It highlights companies that have adopted sustainable packaging practices. Through a literature review, the paper investigates how consumers respond to sustainable packaging along with insights into how both consumers and brands view sustainable packaging.

This next paper aims to examine the relationship between the stock markets in Australia and India after the recession of 2008.The findings of the study indicated a long-term, unidirectional causal relationship between Australia's and India's stock market which runs from Australian markets to the Indian stock markets. In the short term, there no causal connection between the Indian and Australian stock markets has been found. Since there has been no indication that the two stock markets move in the same direction, investors will probably gain in the short term from diversifying their portfolios between them, according to the study.

Gender plays a significant role in shaping financial decision-making, influencing their approach towards saving, investing, and managing risks. This study explores the relationship between gender and financial decision-making. While conventional stereotypes portray men as risk-takers and women as more cautious in financial matters, this research aims to uncover elements like risk tolerance, information-gathering strategies, emotional influences, and the impact of social roles on financial choices. The findings highlight the diversity of approaches within each gender, challenging the one-size-fits-all with financial behavior. This study offers insights into the complex connections between gender and financial decision-making, encouraging a more informed understanding of financial behavior across genders.

The last nut not the least paper is a case study that reflected on the shift in societal dynamics and family structures, by urbanization and caregiving expectations. This case study examines the rise of institutional eldercare and its cultural implications and highlighted how traditional norms are being challenged by more individualistic, market-driven approaches. It explores societal perceptions of old age homes, along with the operational challenges they face, such as securing funding, qualified staff, and adequate infrastructure. The study emphasizes the need for affordable models and greater government support to make eldercare accessible to a wider population. As India's elderly population continues to grow, the future of old age homes appears promising, provided there is investment in quality care and social change.

Our aspiration is to build on the strengths of the latest management thoughts. We hope to accomplish this by enhancing the quality of the content by welcoming and encouraging the broader audiences, and celebrating and integrating the diversity of knowledge. We thank the authors, reviewers, and advisors for their time, efforts, and wisdom. Without them, this issue would not have been possible. We will be pleased to receive your valuable feedback and input. If you like the issue, please inform us. If not, still let's know; otherwise how we will improve?

Happy Reading….

Dr. Ritu Sinha
Chief Editor

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Role of Artificial Intelligence on Indigenization in the Indian Defence Industry

Abstract

The drive for indigenization has become a central focus for India's defence industry, as the country seeks self-reliance and reduced dependence on foreign technologies. This study highlights the transformative role of Artificial Intelligence (AI) in advancing various aspects of indigenization within the defence sector, particularly in technology development, operational efficiency, and strategic capabilities. AI has the potential to revolutionize the industry by enabling the development of advanced indigenous technologies, including weaponry, surveillance systems, cyber defence mechanisms, and command-and-control systems. The leveraging of AI algorithms and machine learning techniques, defence companies can innovate in ways that enhance accuracy, speed, and efficiency, reducing import dependency and fostering self-sufficiency. However, realising the full potential of AI in defence requires significant investments in research and development, infrastructure, and a highly skilled workforce. Ethical concerns such as data security, privacy, and transparency must also be addressed to ensure responsible AI implementation. Collaboration between the defence industry, academia, and government is vital to maximising AI's impact on indigenisation. Joint initiatives in R&D, knowledge sharing, and skill development are key to building a robust AI ecosystem. With strong investment and collaboration, AI can bolster India's technological capabilities and advance its indigenisation goals, ultimately strengthening defence self-reliance.

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Keywords: *Indigenisation; Artificial Intelligence (AI); Defence industry; Innovation, Technology development, Cyber defence mechanisms, Ethical considerations; IoT.*

Introduction

The process of indigenization in the Indian defence industry involves the ability to design, develop, and manufacture equipment within the country, utilizing domestic skills and resources. This self-reliance extends to the maintenance and repair of domestically produced and imported equipment, aiming to eliminate dependence on foreign suppliers. Despite being a significant importer of defence equipment, India has witnessed shifts in defence acquisition strategies, particularly since 2001, allowing increased involvement of private stakeholders. However, there persists a substantial reliance on foreign Original Equipment Manufacturers (OEMs) for sub-systems and components, even in domestically produced defence equipment. This dependence is attributed to the unavailability of certain technologies within the country and the historical under-participation of the private sector in defence production. The inadequate incorporation of advanced technologies hampers the modernisation of the Armed Forces, hindering India's potential as a superior force.

Government initiatives, such as the 'Defence Industry Policy 2015' and subsequent defence manuals and processes, highlight the importance of independence in the defence sector. These measures aim to strengthen the defence sector, reduce dependence on foreign industries, and promote the development of indigenous technologies and capabilities. Despite these efforts, challenges persist in the Indian defence industry, and there is a need to address both strengths and weaknesses comprehensively. The call for a self-reliant India, particularly in the context of recent global conflicts and disruptive defence technologies, such as the Armenian war of Nagorno-Karabakh, the Russia-Ukraine conflict, the Israel-Hamas conflict, and the high-altitude Ladakh standoff, prompted the government of India to announce the

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'Atmanirbhar Bharat' initiative in May 2020. This initiative, encompassing the five pillars of Economy, Infrastructure, System, Demography & Demand, includes a special economic package for a self-reliant India. The Department of Military Affairs (DMA), Ministry of Defence (MoD), released a list of items with an embargo on imports beyond a specified timeline. This negative list aims to incentivize indigenisation and provides an opportunity for the Indian defence industry to manufacture items using their design and development capabilities or by adopting technologies from the Defence Research and Development Organisation (DRDO).

As India's defence spending continues to increase, there is a significant focus on investment in the indigenous defence industry. The vision includes strengthening India's military capabilities, with projections indicating substantial acquisitions in fighter planes, Main Battle Tanks, and other technologically advanced equipment. Former Chief of the Army Staff (COAS) General M. M. Naravane emphasizes the need to adapt to the information age, underscoring the necessity to reassess existing procurement practices. In this context, the analysis underscores the imperative to re-assess, re-align, and re-model the Indian defence industry by incorporating Artificial Intelligence (AI) as a transformative force. AI plays a pivotal role in accelerating the indigenisation process, promoting self-sufficiency, and enhancing strategic capabilities in military systems.

Role of AI in Defence Technologies

In the era of exponential technological advancement, strategic execution of innovative ideas is crucial to navigate the "Valley of Death," representing the gap between university research and commercialization. The armed forces, with their ability to predict technological shifts, play a vital role in bridging this gap. Technologies typically follow an S-curve, starting with exponential growth, and handholding support during the initial research phases can propel them to an inflection point. Despite the current lower position on the exponential curve for emerging technologies like AI, quantum technology, and space launch, targeted efforts can accelerate their development.

The information revolution characterized by datafication, diginectivity expansion, and the rise of intelligent machines necessitates a fundamental shift in deterrent power components and a potential transformation in the character of warfare. The integration of artificial intelligence, big data analytics, robotics, and quantum information science in military applications demands adaptation from military organizations engaged in long-term strategic competition. Preparing for future security challenges while dealing with immediate issues is becoming increasingly complex in this ever-shifting global technological landscape.

The present moment offers an opportune time to envision a future where Artificial Intelligence (AI) commands military operations. AI advancements hold promise in defence technologies, potentially enhancing the capabilities and performance of military forces. Globally, nations are incorporating AI to boost the effectiveness of their defence forces. The first-generation application of AI for military purposes could expedite decision-making, elevate the complexity of military operations, and enhance cost competitiveness during peacetime military competitions. However, realizing the full military potential of AI requires the integration of software and hardware with innovative operational concepts and organizational adaptation.

AI is poised to reshape defence technology akin to the impact of airplanes, nuclear weapons, and computers. The modification of defence technologies by AI directly correlates with the expertise and experience of engineers and scientists in developing these technologies. The generation of a constant stream of data through physical defence exercises, training, war games, and digital simulations is essential for AI applications in defence. Beyond defence, AI is at the forefront of Industry 4.0, revolutionizing manufacturing sectors by leveraging big data accumulated through Internet-of-Things (IoT) technology. Despite challenges in modelling highly nonlinear phenomena in a high-dimensional space, AI exhibits significant potential as a modelling, analysis, and automation tool. Industrial AI requires pattern recognition for nonlinear data, unstructured data analysis, robustness to repetitive tasks, fast computation speed, and high interpretability. This study aims to raise awareness of AI applications in various industrial sectors, contributing to its broader implementation.

Influence of AI on Organizational Performance

AI represents a distinctive field of scientific exploration centered on three primary objectives: constructing computer programs exhibiting intelligence, developing subsets replicating human tasks, and creating expert systems to supplement or complement human intelligence in various tasks. The significance of collecting and interpreting data through AI applications is underscored by the belief that the nation excelling in this field will enhance its military power, as stated by Russian President Vladimir Putin.The term "AI" encompasses technological devices aiming to replicate human cognitive abilities autonomously, considering any encountered constraints. AI encompasses various technologies, including machine translation, chatbots, and self-learning algorithms, contributing to a better understanding of the environment and informed decision-making. Organizations are increasingly adopting AI to adapt to or disrupt their ecosystems, optimizing strategic advantages.

AI technologies offer numerous benefits to improve organizational performance. Deploying AI transforms processes into intelligent, optimized, self-reactive, and automated systems, eliminating manual and resource-intensive tasks. AI's efficiency extends across the entire organizational value chain, influencing research and development, maintenance, operation, sales/marketing, planning and production, demand forecasting, and services. AI deployment enables organizations to achieve several objectives, including enhancing operational efficiency, improving customer experience, innovating products and services, adapting to changing market conditions, creating new business models, optimizing supply-demand relationships, detecting fraud, automating threat intelligence and information systems, diagnosing and treating pathologies, and automating quality management and logistics. Three promising AI segments by 2025 include detection and avoidance of moving objects, static image recognition, classification, and medical patient data processing, with the potential to generate significant economic turnover. Organizations are increasingly relying on AI to improve productivity and develop new services. While AI may not equal human intelligence, its impact on specific tasks and organizational processes is considerable.

The study by Huang et al. suggests that AI capabilities indeed influence performance improvement, particularly in the context of knowledge sharing within organizations. According to the findings, the relationship between AI and knowledge sharing is identified as a mechanism that enhances organizational performance. This implies that as organizations leverage AI capabilities to facilitate knowledge sharing among employees, there is a positive impact on overall performance. It is important to note that this influence on performance is contingent on other organisational factors remaining constant.

Furthermore, the study does not explicitly provide information on the specific business value of AI-based transformation projects. However, based on the broader understanding of AI's role in facilitating knowledge sharing and enhancing organizational performance, one can infer that the business value of AI-based transformation projects lies in their ability to streamline information exchange, improve collaboration, and contribute to overall efficiency within an organization. The potential benefits may include increased innovation, quicker decision-making, and enhanced adaptability to changing circumstances, all of which contribute to the organisation's competitive edge and long-term success. This study aims to address the research questions: Do AI capabilities influence performance improvement? What is the business value of AI-based transformation projects? The relationship between AI and knowledge sharing is posited to enhance organisational performance, assuming other organisational factors remain constant.

Entrepreneurial Orientation

Entrepreneurial Orientation (EO) stands out as a crucial characteristic for organisations, empowering them to leverage and further explore the capabilities of Big Data Analytics (BDA) and Artificial Intelligence (AI) to achieve superior Operational Performance (OP). EO, particularly associated with higher-order capabilities like BDA-AI, plays a vital role, with its impact on Operational Performance varying under the influence of Environmental Dynamism (ED). The entrepreneurial traits of "proactiveness," "risk-taking," and "innovativeness" become pivotal in sensing dynamic market changes. Organisations with an entrepreneurial orientation can effectively navigate dynamic environments, simultaneously exploring and exploiting

emerging technologies like BDA-AI to enhance decision-making and operational performance. Although there is a positive relationship between EO and OP, its impact is less pronounced in highly dynamic environments.

EO is considered a desirable capability, positioning organisations to invest in emerging technologies to adapt to external environmental changes. Moreover, EO exhibits differential effects on BDA-AI and OP under varying degrees of Environmental Dynamism. In essence, managerial entrepreneurial orientation becomes crucial for building and exploiting dynamic capabilities, requiring patience in investment. Understanding where and how to develop and exploit BDA-AI is vital for gaining a competitive advantage. Additionally, environmental dynamism influences how EO impacts the adoption of BDA-AI and its subsequent impact on operational performance. Managers must grasp the nuances of how varying degrees of environmental dynamism affect the effectiveness of BDA-AI adoption and its impact on operational performance.

The increasing utilisation of cutting-edge technologies has significantly enhanced organizational effectiveness, efficiency, and productivity. As organisations continually improve their AI capabilities with existing and new knowledge, AI identifies redundancies in manufacturing processes, optimising resource utilisation for improved performance. However, challenges persist due to the lack of integrated existing and new knowledge, making it challenging to determine the specific nature of knowledge required for optimal AI-driven improvement in organisational performance. Consequently, organisations face recurring challenges in business processes, competition, technological advancements, and finding innovative solutions in a rapidly changing society. Intelligent Agents, with their diverse capabilities, contribute significantly to an organisation's innovation approaches through strategic knowledge activities. This resurgence is driven by the recognition that competitive advantages in industries are more limited and significant for growth.

Applications of AI in the Manufacturing Industry

The evolution of AI has been remarkable, particularly with the advent of machine learning in the 2000s and its latest advancements in Deep Learning and Generative AI. When combined with big data, AI demonstrates the capability to perform tasks and operations faster and with higher accuracy compared to human counterparts. As machine learning algorithms evolve, there arises a necessity to translate acquired knowledge into accurate predictions. To address this need, approaches such as representation learning have been developed, transforming features into intermediate representations containing valuable information. Deep learning techniques become essential when expressing representations in terms of other representations, where simpler concepts define each layer. Computational models, via deep learning, learn representations with varying abstraction levels through multiple processing layers. The analysis highlighted the vast potential of AI in organizations consisting of improved operational efficiency, optimized customer experiences, enhanced adaptability to market changes, strengthened forecasting capabilities, fraud detection, advanced threat monitoring, automated IT functions, optimized sales processes, and streamlined supply chain management.

In manufacturing, the abundance of analytical data lends itself well to machine evaluation, and various factors influence the manufacturing process. Machine learning models excel in predicting the impact of individual variables in complex scenarios, a task challenging for humans to undertake. Manufacturers can leverage AI to enhance operational efficiency, introduce new products, adapt product models, and allocate future financial resources, thereby driving digital transformation. The potential benefits encompass increased production, cost reduction, improved quality, and minimised downtime. Furthermore, advanced image processing techniques facilitate automatic categorization of defects in industrial products, improving defect detection.

The manufacturing sector is experiencing a transformative shift with AI techniques, embracing better visibility, flexibility, and operational efficiency. AI facilitates robust demand forecasting, inventory optimization, and enhanced decision-making. AI-enabled manufacturing units optimize processes through enhanced monitoring and automation, identifying inefficient machines and adjusting parameters to enhance yields, thus reducing the cost of poor quality. Henriques et al. propose that integrating AI can enhance strategic alignment across various manufacturing and operations management stages. AI finds utility in

numerous production aspects, such as quality control, inspections, and packaging, ultimately leading to improved productivity. Machine learning techniques are employed to estimate the parameters of models before product launch, surpassing traditional methods, while data mining and machine learning analyse information during new product experimentation stages.

In the domains of supply chain and logistics, AI presents numerous opportunities. Key areas of impact include operational procurement using intelligent data and chatbots, supply chain planning for forecasting supply and demand, inventory management for optimal stock levels, order management, expedited transportation for reduced delivery time and costs, and supplier selection based on the latest data. Methodologies incorporating AI have been developed to integrate design, engineering, and marketing aspects for designing new product specifications, showcasing customer satisfaction and cost-effectiveness.Manufacturing, known for its inherent risks, sees a potential reduction in incidents with the integration of AI technologies. AI aids in cost reduction, enhanced analytics, efficient resource utilization, improved forecasting, lower inventory costs, and predictive maintenance, minimising downtime and maintenance expenses. Real-time analytics enabled by sensor data collection allows for faster insights and data-driven decisions, leading to a transition to "dark factories" in some cases, where human labour is minimal, and robots operate without the need for lighting.

Advancements in AI-Powered Systems

AI-powered systems exhibit superior capabilities in processing large volumes of data compared to traditional systems. Moreover, AI enhances the system's autonomy, adaptability, and decision-making process through inherent computational and decision-making capacities. The growing support for innovative and sophisticated AI technologies is poised to fuel the demand for AI-driven systems in Defence manufacturing[38]. AI methodologies have permeated every facet of engineering processes, spanning manufacturing, industrial design, inspection, monitoring and control, maintenance of industrial assets, and product testing and evaluation. The engineering landscape has witnessed significant strides, empowering engineers to design, deploy, and upkeep cutting-edge equipment and tools more efficiently. This progress owes much to the application of AI techniques in tackling domain-specific challenges across diverse engineering domains. AI algorithms have played a pivotal role in minimizing cycle time and waste, thereby substantially enhancing resource utilization in intricate manufacturing processes. Machine learning offers effective solutions for continuous quality enhancement in complex manufacturing operations. AI technologies are adept at performing tasks that conventionally necessitate human cognitive capabilities. Strategic deployment of AI is essential to unlock its potential and deliver value to businesses. It can confer a competitive edge by enriching customer experience and engagement, elevating employee productivity, enabling automation, cultivating organizational competitive advantages, and fostering innovation in product development.

Reimagining AI Infrastructure

An AI system constitutes a multifaceted structure comprising diverse elements such as investment, design, human ingenuity, data, controlling software, and hardware for communication and computer processing. It can be conceptualised as a supply chain architectural approach necessitating the analysis of all its intricate components to identify essential conditions, forecast outcomes, assess the impact of influences, map the flow of necessary activities, generate alternatives, determine precedence, order causation, and establish control systems. AI Critical Infrastructures assume a pivotal role in AI innovation as they create an environment conducive to the advancement of AI technologies. These infrastructures encompass the conditions, capacities, assets, and inputs that contribute to the development of AI technologies. A generalised AI architecture comprises at least five essential elements, steps, or processes. Initially, certain events occur or conditions exist, enabling the creation of potentially valuable data. Subsequently, the data is appropriately captured and logged for initial storage. Following this, the data is aggregated, and data analysis ensues from algorithm design and deployment. Ultimately, decision-making is grounded in AI insights.

To achieve competitive progress in AI development, at least six critical infrastructure elements must be in place. These encompass a robust industrial policy that influences all other AI critical infrastructures; a skilled human workforce capable of conducting research and development into AI innovation to implement these industrial policies; investment in AI research and

development (R&D) to propel AI innovation forward; AI hardware to provide physical assets such as sensors, computing power, communications connectivity, and data storage to facilitate access to persistently dispersed data; readily accessible data; and AI demand from receptive users of AI, the clients of AI service providers, which is necessary to monetise AI advice and provide a return on AI investment for sustainable AI progress. The AI supply chain will yield outcomes by guiding human decision-makers.

Industrial Policy for AI

To ensure the success and safety of AI-powered critical infrastructures, it is imperative to establish industrial policies that mitigate restrictive regulations on AI while ensuring the provisioning of all critical infrastructures. Several measures can be undertaken to accomplish this: (i) providing un-throttled access to data, (ii) sponsoring basic AI research, (iii) ensuring an adequate depth of AI workforce, (iv) mitigating litigation against AI deployments through regulatory enforcement and criminal actions, (v) setting enabling standards that balance societal pressures on AI with AI deployments, (vi) ensuring advances in computing power and cost containment, (vii) further deploying ubiquitous connectivity, and (viii) establishing and enhancing intellectual property rights and other legal mechanisms.

In 2016, the National Science and Technology Council (NSTC) of the United States established strategic priorities to fund AI research federally. The objective was to generate AI knowledge and technologies that would positively impact society and minimize negative ones. This strategic plan catalyzed efforts across various agencies to develop AI industrial policy frameworks in their strategic plans, reports, and memoranda. They have advocated for R&D from AI investment, expansion of availability for AI in data, models, and computing resources, reducing AI barriers, enhancing AI standards development, promoting AI workforce development, and establishing common principles for AI design, development, acquisition, and use that foster public trust. The European Union published an AI White Paper in 2020 to encourage investment in AI leadership. However, the focus primarily centered on ensuring that AI aligns with "European values." In 2021, the European Commission introduced the AI Act, which sets out regulations for developing, marketing, and using AI. The Act also includes a risk-based evaluation system for AI deployments.

Reimagining the AI Workforce

Predicting human behaviour stands out as one of the primary objectives of AI. While some proponents of AI have suggested that it could entirely replace human labour, the reality is that AI still heavily relies on human creativity and guidance in the research, development, and deployment phases across various fields and application domains. Estimates suggest that by 2030, automation-induced worker displacement will only amount to approximately 0.5%. Notably, only a small fraction of all jobs fall within the cognitive workforce category, with the majority being in physical labour. The AI workforce is anticipated to undergo significant growth.

Organizations considering the adoption of AI technology should undertake several key initiatives. Firstly, they must adequately train their leaders, collaborators, and stakeholders to grasp the unique aspects of AI transformation. Secondly, they should prioritize maintaining job quality within the context of human-machine interaction. Thirdly, establishing an internal and external "control tower" to oversee ethical issues related to data and algorithms is essential to foster trust. Fourthly, organizations must focus on recruiting and retaining skilled personnel for AI while anticipating changes in employment and the required skills. Fifthly, they must adapt their training tools to handle increased volumes and evolving content. Lastly, adjusting governance structures to achieve a new balance between centralisation and decentralisation of decisions is crucial.

Investment in AI Research and Development (R&D)

AI serves as a pivotal tool for enhancing manufacturing processes by aiding in R&D efforts, improving product quality, reducing errors, and predicting demand to ensure a stable supply chain. However, to effectively integrate AI into the industry, there must be an environment conducive to these advancements and a workforce capable of collaborative work with technology. The development of AI necessitates substantial funding and research efforts. It encompasses a complex set of challenges that cannot be addressed without significant investment in human-inspired and directed R&D. Therefore, public policies supporting AI R&D, by

eliminating structural barriers and providing necessary resources, are crucial for fostering innovation.

AI Hardware

High-performance computing hardware is indispensable for AI as it gathers data from networked sensors, which is then stored across multiple data aggregations. Progress in AI relies on cloud data storage, widespread data accessibility via ICT networked telecommunications, and secure networked systems. Furthermore, the advancement of AI hinges on innovation in computational hardware and connectivity. Regulatory enablement through industrial policies that enhance connectivity, along with standardization efforts, can contribute significantly to improving AI hardware and connectivity.

Accessible Data

Effective functioning of AI systems hinges on easy access to data. The success of machine learning and initial inferences depends on a steady stream of new data, which necessitates public policies facilitating data access, reducing privacy restrictions, and fostering widespread sensor networks. Continuous access to updated data is vital for maintaining accuracy and relevance, particularly in dynamic environments.

Challenges and Constraints

The advancement of AI-powered modern technologies has significantly contributed to enhancing the efficiency and effectiveness of manufacturing operations. By identifying redundancies and optimizing resource utilization, AI enables better performance outcomes. Nonetheless, numerous organizations still face persistent challenges in their manufacturing processes.

Integration Challenges

Organizations encounter difficulties integrating existing and new knowledge into AI learning, resulting in a lack of an enabling environment. This makes it challenging for organizations to develop and implement intelligent systems and distribute, retain, and reuse knowledge. Consequently, the benefits of AI on organisational performance become limited. Determining the type of knowledge required for AI to enhance organizational performance is challenging due to the lack of integration between existing and new knowledge, leading to frequent challenges in business processes and technological advancements.

Selection of AI Techniques

While AI techniques can significantly benefit engineering and manufacturing, many professionals in this field struggle with the diversity of available options. Selecting the most appropriate technique from a wide range of options is not always straightforward, potentially discouraging experts from adopting AI techniques.

Investment Considerations

Many researchers overlook the investment and time required for implementing AI-based transformation projects. It is crucial for organizations planning to implement AI to assess the costs of such projects beforehand to make informed decisions. Additionally, estimating the duration of these projects can provide insights into how future AI transformation projects may unfold.

Data Storage Challenges

The rapid acceleration of technological progress and the competitive nature of the business world have led to a massive increase in the volume of data being generated. This data, in diverse formats and generated faster than ever, necessitates increased computational processing capacity, a scarce resource. Moreover, quick decision-making requires speed and efficiency[11].The lack of a comprehensive cloud computing infrastructure capable of handling large amounts of data and the required computing power by AI has made industries hesitant to store their data outside India. Since the infrastructure is primarily located beyond India's borders, there are risks associated with accessing the data without direct control. The use of AI is subject to differing opinions, with no regulations in place to govern AI and ensure adherence to ethical principles. Ethical concerns regarding AI include lack of accountability and reliability, risk of errors and bias, data quality, vulnerability to cyber-attacks, training in expertise, integration with existing infrastructure, and public perception.

Discussion

As India has expanded its economic power and grown technologically in certain areas, it has become more determined than ever to create a world-class and globally competitive defence industry. While criticisms of DRDO's performance may have been exaggerated, valid concerns remain about its failure to promote self-

reliance and its tendency to make exaggerated claims about achievements. Several questions persist regarding the organization's claims of indigenous development.

The Indian military still heavily relies on foreign systems and technologies in many procurements, indicating a need for enhanced indigenization efforts. The defence industry in India faces structural, financial, and cultural challenges, including overstaffed, monopolistic state-owned enterprises dominating the arms production process (DPSUs and OFs). Lack of coordination between the defence sector and the armed forces regarding requirements, planning, and production further exacerbates these challenges.

To maintain its position, India's manufacturing sector must prioritize adopting a strategy focusing on developing new concepts in AI. Collaboration between the government, industry, and academia is crucial to develop infrastructure, implement AI in the public sector, establish policies and regulations, advance technology, and improve human resource development. Public-private partnerships (PPP) in R&D can strengthen the Indian Defence Innovation ecosystem, with successful models such as Centers of Excellence (CoEs) showing promise.

It is essential to create a National Policy for Advanced Manufacturing to adopt Industry 4.0 and collaborate to develop a curriculum aiding in AI technology development. Additionally, establishing a capable computing infrastructure with servers providing massive computing power and storage is crucial for AI development. AI ethics principles ensure ethical conduct while developing and deploying AI, necessitating strict legal and regulatory frameworks to ensure responsible, equitable, traceable, reliable, and governable AI actions.

Conclusion

The article highlights the significant impact of AI on the manufacturing industry, with advancements in technology leading to enhanced efficiency and effectiveness of operations. Despite these advancements, organizations face persistent challenges in integrating existing and new knowledge into AI learning, selecting appropriate AI techniques, considering investment requirements, managing data storage, and addressing ethical considerations. AI has emerged as a transformative force in driving innovation across various sectors of manufacturing, bolstering India's efforts to enhance self-sufficiency and decrease dependence on foreign technologies. Its influence and importance within India's domestic manufacturing industry are profound and steadily expanding. Swiftly integrating AI into production processes is essential to harness its advantages, albeit this necessitates considerable time, resources, financial investments, and the upskilling of personnel. AI now lies at the core of the manufacturing sector, continuously broadening its scope.

Moreover, the discussion emphasized on the importance of collaboration between government, industry, and academia to drive innovation in AI technology and strengthen the manufacturing sector. The need for a National Policy for Advanced Manufacturing, public-private partnerships in R&D, and the establishment of a capable computing infrastructure is underscored to support AI development. The potential of AI to revolutionize the manufacturing industry is substantial, empowering the development of cutting-edge technologies. Leveraging AI algorithms and machine learning techniques, indigenous companies can innovate in the design and production of sophisticated weaponry, surveillance systems, cyber defence mechanisms, and command and control systems. AI-driven technologies offer unparalleled precision, speed, and efficiency, mitigating reliance on imports and fostering self-reliance. However, the development and implementation of AI-powered manufacturing systems demand substantial investments in research and development, infrastructure, and a skilled workforce.

Ultimately, the adoption of AI in manufacturing requires careful consideration of various factors, including ethical implications, strategic alignment, and investment planning. By addressing these challenges and leveraging collaborative efforts, organizations can harness the full potential of AI to drive innovation, enhance productivity, and maintain competitiveness in the global market. The impact and role of AI in India's domestic manufacturing industry can significantly bolster self-reliance, technological prowess, operational efficiency, and strategic defence capabilities. By embracing AI technologies, committing to R&D investments, and nurturing collaborative partnerships, India can realize its objectives of indigenous production, enhance its capabilities, and cultivate self-sufficiency in critical technologies.

References

Al-Surmi, A., Bashiri, M., &Koliousis, I. (2022). AI-based decision making: combining strategies to improve operational performance. International Journal of Production Research, 60(14), 4464-4486.

Argote, L., &Argote, L. (2013). Organization learning: A theoretical framework. Organisational learning: creating, Retaining and Transferring knowledge, 31-56.

Argote, L. (2015). An opportunity for mutual learning between organizational learning and global strategy researchers: transactive memory systems. Global Strategy Journal, 5(2), 198-203.

Bagby, J. W., & Houser, K. (2021). AI: The Critical Infrastructures. Available at SSRN 3924512.

Bedbrook, C. N., Yang, K. K., Robinson, J. E., Mackey, E. D., Gradinaru, V., & Arnold, F. H. (2019). Machine learning-guided channelrhodopsin engineering enables minimally invasive optogenetics. Nature methods, 16(11), 1176-1184.

Bengio, Y., Courville, A., & Vincent, P. (2013). Representation learning: A review and new perspectives. IEEE transactions on pattern analysis and machine intelligence, 35(8), 1798-1828.

Benko, A., &Lányi, C. S. (2009). History of artificial intelligence. In Encyclopedia of Information Science and Technology, Second Edition (pp. 1759-1762). IGI global.

Bitzinger, R. A. (2014). The State of Defence Innovation in India: Can It Catch Up With Global Leaders?. IGCC Defence Innovation Briefs, 2014(7).

Blanchet, J., Gallego, G., &Goyal, V. (2016). A markov chain approximation to choice modeling. Operations Research, 64(4), 886-905.

Borges, A. F., Laurindo, F. J., Spínola, M. M., Gonçalves, R. F., & Mattos, C. A. (2021). The strategic use of AI in the digital era: Systematic literature review and future research directions. International Journal of Information Management, 57, 102225.

Brynjolfsson, E., & Mcafee, A. N. D. R. E. W. (2017). Artificial intelligence, for real. Harvard business review, 1, 1-31.

Buchanan, B. G. (2005). A (very) brief history of artificial intelligence. Ai Magazine, 26(4), 53-53.

Daron Acemoglu & Pascual Restrepo, Low-Skill and High-Skill Automation, 12 J. HUM.CAP. 204-232 (2018) but see, Nicola Croce &Moh Musa, The New Assembly Lines: Why AI Needs Low-Skilled Workers Too, WORLD ECON, F. (Aug.12, 2019).

Dhanabalan, T., & Sathish, A. (2018). Transforming Indian industries through AI and robotics in industry 4.0. International Journal of Mechanical Engineering and Technology, 9(10), 835-845.

Diana Gehlhaus & Ilya Rahkovsky, U.S. AI Workforce - Labor Market Dynamics, CSET ISSUE BRIEF, Center for Security and Emerging Technology, Georgetown Univ. (April 2021).

Di Francescomarino, C., & Maggi, F. M. (2020). Preface to the special issue on artificial intelligence for business process management 2018. Journal on Data Semantics, 9, 1-1.

Dubey, R., Gunasekaran, A., Childe, S. J., Bryde, D. J., Giannakis, M., Foropon, C., ...& Hazen, B. T. (2020). Big data analytics and AI pathway to operational performance under the effects of entrepreneurial orientation and environmental dynamism: A study of manufacturing organisations. International journal of production economics, 226, 107599.

European Commission. (February 2020). White paper on artificial intelligence: a European approach to excellence and trust. OCLC 1141850140.

Goodfellow, I., Bengio, Y., &Courville, A. (2016). Deep learning. MIT press.

Goswami, S., Anitescu, C., Chakraborty, S., &Rabczuk, T. (2020). Transfer learning enhanced physics informed neural network for phase-field modeling of fracture. Theoretical and Applied Fracture Mechanics, 106, 102447. Haenlein, M., & Kaplan, A. (2019). A brief history of artificial intelligence: On the past, present, and future of artificial intelligence. California management review, 61(4), 5-14.

Hooker J., & Kim, T. W. (2019). Ethical implications of the fourth industrial revolution for business and society. In Business Ethics (Vol. 3, pp. 35-63). Emerald Publishing Limited.

Huang, G., Sun, Y., Liu, Z., Sedra, D., & Weinberger, K. Q. (2016). Deep networks with stochastic depth. In Computer Vision–ECCV 2016: 14th European Conference, Amsterdam, The Netherlands, October 11–14, 2016, Proceedings, Part IV 14 (pp. 646-661). Springer International Publishing.

Jiang, Y., & Jiang, Z. P. (2017). Robust adaptive dynamic programming. John Wiley & Sons.

Ji, X., Henriques, J. F., &Vedaldi, A. (2019). Invariant information clustering for unsupervised image classification and segmentation. In Proceedings of the IEEE/CVF international conference on computer vision (pp. 9865-9874).

Karpukhin, A., Tevjashev, A., Tkachenko, V., & Ageyev, D. (2017, October). Features of the use of software packages for modeling info-communication systems. In 2017 4th International Scientific-Practical Conference Problems of Info-communications. Science and Technology (PIC S&T) (pp. 380-382). IEEE.

Kim, S. W., Kong, J. H., Lee, S. W., & Lee, S. (2022). Recent advances of AI in manufacturing industrial sectors: A review. International Journal of Precision Engineering and Manufacturing, 1-19.

Kuzey, C., Uyar, A., & Delen, D. (2014). The impact of multinationality on firm value: A comparative analysis of machine learning techniques. Decision Support Systems, 59, 127-142.

Mark Muro, Robert Maxim & Jacob Whiton, Report-Automation And Artificial Intelligence: How Machines Are Affecting People And Places, Brookings Inst. (Jan.24, 2019).

McCorduck, P., Minsky, M., Selfridge, O. G., & Simon, H. A. (1977, August). History of artificial intelligence. In IJCAI (pp. 951-954).

Mori, S. (2018). US defence innovation and AI. Asia-Pacific Review, 25(2), 16-44.

LeCun, Y., Bengio, Y., & Hinton, G. (2015). Deep learning. nature, 521(7553), 436-444.Lee, J., X. Grey, M., Ha, S., Kunz, T., Jain, S., Ye, Y., ...& Karen Liu, C. (2018). Dart: Dynamic animation and robotics toolkit. The Journal of Open Source Software, 3(22), 500.

Liebowitz, J. (2006). Strategic intelligence: business intelligence, competitive intelligence, and knowledge management. CRC Press.

National Science and Technology Council, Networking and Information Technology Research and Development Subcommittee, The National Artificial Intelligence Research and Development Strategic Plan, (Oct.2016). Nti, I. K., Adekoya, A. F., Weyori, B. A., & Nyarko-Boateng, O. (2022). Applications of AI in engineering and manufacturing: A systematic review. Journal of Intelligent Manufacturing, 33(6), 1581-1601.

Olan, F., Arakpogun, E. O., Suklan, J., Nakpodia, F., Damij, N., &Jayawickrama, U. (2022). AI and knowledge sharing: Contributing factors to organizational performance. Journal of Business Research, 145, 605-615.

Rashid, A. B., Kausik, A. K., Al Hassan Sunny, A., & Bappy, M. H. (2023). AI in the Military: An Overview of the Capabilities, Applications, and Challenges. International Journal of Intelligent Systems, 2023.

Rastogi, A., Zang, X., Sunkara, S., Gupta, R., & Khaitan, P. (2020, April). Towards scalable multi-domain conversational agents: The schema-guided dialogue dataset. In Proceedings of the AAAI conference on AI (Vol. 34, No. 05, pp. 8689-8696).

Rizvi, A. T., Haleem, A., Bahl, S., & Javaid, M. (2021). AI (AI) and its applications in Indian manufacturing: a review. Current Advances in Mechanical Engineering: Select Proceedings of ICRAMERD 2020, 825-835.

Routray, B. P. (2013). Armed Forces versus Technologists in India's Military Modernisation. Defence studies, 13(1), 33-55.

Rubin, V. L., Chen, Y., & Thorimbert, L. M. (2010). Artificially intelligent conversational agents in libraries. Library Hi Tech, 28(4), 496-522.Shoham, Y., Perrault, R., Brynjolfsson, E., Clark, J., Manyika, J., Niebles, J. C., ...& Bauer, Z. (2018). The AI index 2018 annual report. AI Index Steering Committee, Human-Centered AI Initiative.

Simon, M. A. (1995). Reconstructing mathematics pedagogy from a constructivist perspective. Journal for research in mathematics education, 26(2), 114-145.

Soltani, Z. K. (2021). The Applications of AI in Logistics and Supply Chain. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(13), 4488-4499.

Upadhyay, A. (2022). Fighting Future Wars: Preparing India for Conflicts in the 21st Century. Wamba-Taguimdje, S. L., FossoWamba, S., Kala Kamdjoug, J. R., & Tchatchouang Wanko, C. E. (2020). Influence of AI (AI) on firm performance: the business value of AI-based transformation projects. Business Process Management Journal, 26(7), 1893-1924.

Wiljer, D., & Hakim, Z. (2019). Developing an artificial intelligence–enabled health care practice: rewiring health care professions for better care. Journal of medical imaging and radiation sciences, 50(4), S8-S14.

Wuest, T., Weimer, D., Irgens, C., & Thoben, K. D. (2016). Machine learning in manufacturing: advantages, challenges, and applications. Production & Manufacturing Research, 4(1), 23-45.

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Assessing Growth and Risk - Adjusted Performance of ESG Investments in Indian Stock Market

Abstract

ESG investing considers environmental, social, and governance scores as non-financial factors that may be used to measure an investment's sustainability and to ensure that the companies being funded are responsible corporate citizens and have acknowledged their responsibility towards the environment as well as society. Furthermore, finance professionals have recently started considering ESG as an investment style. This study focuses on tracking the growth of the ESG investment style in the Indian Stock market and assessing the performance of ESG Investments. Further, the authors assess the risk-adjusted performance of Indian ESG products available for investment and compare it with the performance of the broad market. The authors then attempt to determine whether these investment products have provided better returns than the market benchmark while assessing their riskiness.

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Introduction

ESG stands for Environmental, Social, and Governance. ESG factors are criteria investors use to evaluate the environmental and ethical impact of a company or investment. Environmental criteria refer to a company's impact on the natural environment, including its greenhouse gas emissions, use of natural resources, and waste disposal. Social criteria relate to a company's impact on society, including its relationships with employees, customers, and local communities, as well as its treatment of human rights and diversity. Governance criteria refer to the systems and processes a company has in place to manage itself, including board structure, executive compensation, and transparency in financial reporting. Together, these ESG factors can help investors evaluate a company's long-term sustainability and ethical impact and make more informed investment decisions.

Key ESG Factors

As the name suggests, the three main categories of ESG are Environment, Social and Governance. Since most of the factors are interlinked, placing a factor under one category is mostly infeasible, as these main categories are interlinked to one another and a factor might belong to more than one category. The factors in the environmental category mainly deal with the safeguard of natural resources of the world. Such issues may include but are not limited to climate change and carbon emissions, air and water pollution, biodiversity, deforestation, energy efficiency, waste management and water scarcity. The social factors are concerned with the human aspects of the business and may include issues in the areas such as customer satisfaction, data protection and privacy, gender and diversity, employee engagement, community relationships, human rights and labour standards. The governance factories generally concerned with standards and relates to board composition, audit committee structure, bribery and corruption, executive compensation, lobbying, political contributions and whistle-blower schemes.

ESG Investing

ESG investing refers to the practice of investing in companies that meet certain Environmental, Social, and Governance (ESG) criteria. ESG investors seek to invest in companies that are committed to sustainability, ethical practices, and good corporate governance and that are aligned with their values. ESG investors often use various screening tools to

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identify companies that meet their ESG criteria, such as excluding companies involved in controversial industries or activities or favouring companies with strong ESG performance ratings. ESG investing is becoming increasingly popular as investors look for ways to make a positive impact on their investments while achieving their financial goals. ESG investing can also potentially lead to better risk management, improved long-term performance, and greater transparency in corporate behaviour.

ESG Investing and Sustainability

ESG investing and sustainability go hand in hand, focusing on making smart choices for both businesses and the world. ESG investing is about picking companies that do good things for the environment, treat people well, and are well run. When people invest in these companies, it encourages them to continue doing these positive things. Sustainability is like ensuring that a company can keep going for a long time without hurting the planet or using all its resources. It is about finding a balance between making money, taking care of people, and not harming the environment. ESG investing and sustainability work together because when investors choose companies that care about ESG, they push them to be more sustainable. This helps businesses do well and helps the planet and society in the long run.

ESG investment serves as a powerful mechanism to champion sustainability principles. By directing investments towards companies that hold ESG factors in high regard and demonstrate a resolute dedication to sustainable business conduct, ESG investing actively contributes to the promotion of long-term sustainability. This investment approach aligns with the values and aspirations of investors seeking to have a positive impact on society and the environment. Investing in sustainability-oriented companies can yield multifaceted benefits. Not only does it potentially generate favourable financial returns, but it also fosters positive social change and environmental progress. The act of investing in such companies resonates with the idea of creating a lasting impact, as their practices are geared towards ensuring the well-being of future generations. By allocating capital to these responsible businesses, ESG investors effectively endorse a growth model that is harmonised with ethical considerations.

Furthermore, support extended to companies that prioritise ESG factors indirectly encourages other entities to adopt similar practices. As these sustainable business practices gain traction, they create a ripple effect across industries, inspiring a collective shift towards more conscientious and ecologically responsible conduct. Essentially, ESG investment emerges as an instrumental catalyst that propels the global drive for sustainability, encapsulating aspirations for a world marked by positive social transformations and a healthier environment for all.

ESG Rating

The ESG score assesses a company's ability to manage risks related to environmental, social, and governance concerns in its daily operations and activities. For each ESG factor, there are specific standards that contribute to the overall ESG score. Environmental factors evaluate a company's impact on the environment and its efforts to improve it. Social factors assess a company's interactions with its social environment, such as employees, local communities, and other stakeholders. Governance factors examine corporate responsibility, including topics such as ethics and executive pay.

Several organisations provide ESG ratings for Indian companies, including:

- CRISIL: A leading rating agency in India that provides ESG ratings for Indian companies based on their performance on various sustainability metrics.
- ICRA: Another prominent rating agency in India that provides ESG ratings for Indian companies.
- MSCI ESG Research: A global provider of ESG ratings, the MSCI provides ESG ratings for Indian companies based on their performance in various sustainability metrics.
- Sustainalytics: A global provider of ESG research and ratings, Sustainalytics provides ESG ratings for Indian companies based on their performance on various sustainability metrics.
- CDP India: The CDP is a global environmental disclosure platform that provides ESG ratings for Indian companies based on their climate change disclosures.

Relevance of ESG

ESG is a highly relevant concept that should be given due attention in the present scenario, even though research conducted by JP Morgan shows that COVID-19 has been the major turning point for the growth of ESG as a

concept. Investors view it as the initial sustainability crisis of the 21st century and recognise the urgent need to consider environmental, social, and governance (ESG) factors when making investment choices. A survey conducted by EY among institutional investors worldwide revealed that 90% of them now place higher significance on a company's ESG performance following the pandemic. Additionally, 86% of the respondents emphasise that corporations' decarbonisation efforts play a crucial role in their investment decisions.

ESG Investments

ESG investments have gained traction worldwide as a means of attracting both investors and consumers. The increase in ESG investments can be attributed to three major factors. First, there is a growing understanding that incorporating ESG factors into investment decisions could lead to positive outcomes in terms of investors' risks and returns. Second, beneficiaries and clients are increasingly seeking transparency regarding companies' investment practices and the role that ESG investments can play in meeting these expectations. Finally, the increasing legal framework for ESG investments and legal requirements in several countries around the globe are also contributing to the growth of ESG investments.

ESG investments are picking up pace in India, slowly, but certainly moving ahead. With India's important development plans, adding ESG aspects to investment decisions is becoming increasingly important. This change is happening because of ongoing social issues and growing risks from the environment and climate, which the Government of India has highlighted in 2021.This change fits well with India's promise to follow the Sustainable Development Goals (SDGs). These goals need a lot of money every year, around USD 0.6 trillion, as shown by the Impact Investors Council (IIC) in 2020. ESG investments and India's goals match well, especially when we see India's greater focus on fighting climate change and putting more money into clean energy.

The spirit of this big change also shows up in India's worldwide promises, such as its strong plan to reduce carbon pollution by 30% before 2050. At the same time, India also wants to obtain 40% of its energy from clean sources, not from things that hurt the environment, by 2030. This is why adding ESG things to investment choices is very important. The Indian government is not just talking about this; it is taking action to make it happen. They are making new rules and changes to support businesses focused on doing things the right way in the long run. This is also seen in the recent Economic Survey, which discusses the need to help sustainable development. The government's dedication to this idea is clear from what they said in 2021.Presently, there are nine ESG-themed mutual funds available for investors to invest their money.

Table 1: List of ESG themed Mutual funds in India

Scheme Name	Inception Date (Direct plan)	Benchmark
SBI Magnum Equity ESG Fund	01/01/13	NIFTY 100 ESG Total Return Index
Quantum India ESG Equity Fund	12/07/19	
Axis ESG Equity Fund	12/02/20	
ICICI Prudential ESG Fund	09/10/20	
Quant ESG Equity Fund	06/11/20	
Mirae Asset Nifty 100 ESG Sector Leaders Fund of Fund	18/11/20	
Kotak ESG Opportunities Fund	11/12/20	
Aditya Birla Sun Life ESG Fund	24/12/20	
Invesco India ESG Equity Fund	18/03/21	

Source: Association of Mutual Funds of India

ESG Indices

An index is a portfolio of securities, derivatives, or other financial securities that represents a specific market, asset class, market sector, or investment strategy and also gauges its performance. The use-case of a index can be in different ways such as Market Indicator, Performance Benchmark, and as a basis for index-based investment plans. The environmental, social, and governance (ESG) index is a specialised stock market benchmark that evaluates and ranks companies based on their performance in key sustainability areas. These areas include environmental impact, social responsibility, and corporate governance practices. Companies within an ESG index are assessed for their efforts to reduce their carbon footprint, promote social equity, ensure ethical business conduct, and maintain transparent and effective governance structures. ESG indices serve as tools for investors to align their investments with their values, thus encouraging companies to adopt responsible practices. These indices provide a clear way to track the performance of businesses that prioritise sustainable and socially responsible behaviour, enabling investors to make informed decisions that consider both financial returns and positive societal and environmental impacts. The indices considered in this study are as follows:

(I) Nifty100 ESG index:

The Nifty100 ESG Index has been created to reflect the performance of companies within the Nifty 100 index based on their Environmental, Social, and Governance (ESG) risk scores. The weight of each constituent is adjusted based on their ESG risk score, with the constituent weight being derived from their free-float market capitalisation and modified ESG risk score. This index is suitable for various purposes, including benchmarking and the creation of index funds, exchange-traded funds (ETFs), and structured products.

(ii) S&P 500 ESG US index:

The S&P 500 ESG Index is a comprehensive, market-capitalisation-weighted index created to evaluate the performance of securities that satisfy sustainability criteria while preserving the proportional distribution of industry group weights in the S&P 500.

Literature Review

Seth R. et al (2021) in their paper titled, ESG Investing: A Critical Overview has discussed the different ESG rating, indexing and advisory mechanisms prevalent. Further, this study discusses the shortcomings of ESG investing. In addition, the scope of ESG investment in India has been discussed. The study also evaluated the performance of some funds in India. Meziani (2014) discussed the emergence and growth of ETFs AS an investment vehicle for ESG investors in the US market. It also discusses the performance of US ESG ETFs with SPY. The research concludes that ESG is only a minute portion of the entire ETF market in the US and has a long way to go. Furthermore, it suggests that ETFs will continue to stride forward if they are embraced by institutional and individual investors.

Beloskar V.D. and Nageswara S.V. (2022), in their paper, 'Did ESG Save the Day? Evidence from India During the COVID-19 Crisis' analysed the performance of Indian ESG stocks during the crisis of COVID-19. The study concluded that high-rated ESG stocks showed lower volatility than the rest of the stocks. As per the study, high-rated ESG stocks performed relatively better during the crisis period. The ESG rating also provides downside protection, as per the study. Further, the authors believe that ESG investing in India has seen a major surge during the last two years, that is, 2019-2020. Yue, XG et al (2020), have compared the performance of a portfolio of sustainable funds with a portfolio of traditional funds taken from the Morningstar database, using tools such as annual returns, standard deviation, Sharpe ratio, skewness and kurtosis.

Further, APM, the Fama-French three-factor model, and the Carhart model have been used to explain the returns. The study concluded that during the period of 2014-2018, sustainable fund portfolios generated better returns than traditional funds in some scenarios but underperformed in others. Hence, the overall dominance of sustainable funds over traditional funds has not been proven. Tiwari R., et. al.(2022) studied the performance of the NIFTY50 and NIFTY100 ESG indices and examined the impact of the Russia Ukraine war on the performance of the two indices. The study concluded that the ESG index outperformed the NIFTY50 even in periods of crisis such as COVID-19 and the Russia-Ukraine War. Giese G., et al.(2019) have shown how ESG affects the valuation and performance of companies and performance. The study concluded that ESG characteristics transmit financial value through multiple

channels, unlike other factors where transmission is one-dimensional and simpler. Further, the study suggests that ESG ratings have a low but long-lasting impact on the valuation of companies.

The research by Breedt A.(2019), et. al. highlighted concerns over the systematic integration of ESG information into a worldwide equity portfolio. This suggests that investors who are not engaged in primary research should decide on the data providers carefully. Data providers should be held responsible for transparency so that end users can assess the accuracy of data providers correctly. The standardisation of ESG ratings would reduce scepticism and facilitate greater adoption of ESG-driven investments. A study titled 'Integrating ESG in Portfolio Construction' by Hensrikssonet al..al.(2019) provide an innovative approach to identify companies with poor ESG factors from those with superior ESG factors. Further, it suggests a practical approach to portfolio construction that tilts towards better ESG companies. Folger-Laronde, Z., et. al.(2022) in their research tried to answer questions on whether the financial return performance of ECO-funds with different ratings differs. Further, the relationship between the return performance of ETFs and Eco-Fund ratings in pre and post covid times.

A study by Wimmer M. (2013) studied the persistence of ESG scores in Socially Responsible mutual funds. The research shows that the persistence lasts for about two years; hence, a value-driven investor of AR mutual funds seeking high ESG investments needs to rebalance their portfolios from time to time. Reiser DB and Tucker A (2019) in their study titled: 'Buyer Beware: Variation and Opacity in ESG and ESG Index Funds' provided an account of the ESG landscape drawn from 2018-2019 data on a sample of active and passive funds and traditional funds and showed the variation in their investment strategies, portfolios, fees etc. In addition, the demand and supply drivers fuelling ESG market growth, variation, and opacity were examined. Raghunandan A. and Rajgopal S. (2022), studied whether the ideologies of ESG funds and their investments coincide. The study concluded that the correlation between high ESG funds and their returns and stakeholder friendliness was under-whelming.

Research Methodology

The data for the study was collected from secondary sources, specifically the official websites of NSE (National Stock Exchange), S&P (Standard & Poor's), and AMFI (Association of Mutual Funds in India). This implies that you are using existing data that has already been published or made available by these organisations.The research was analytical in nature aiming to analyse and interpret data to draw conclusions or insights.Various analytical tools and methods were employed to analyse the data and compare the performance of different financial indices and investment vehicles. The tools mentioned include the following:

a) **YoY Returns:** Year-over-year returns, which show the percentage change in the value of an investment over a one-year period.

b) **Annualised Returns (CAGR):** Compound Annual Growth Rate, a measure of an investment's annualised return over a specific period.

c) **Year-on-Year Growth (YoY):** Similar to YoY returns, this refers to the growth rate of investments over consecutive years.

d) **Absolute Returns:** The total percentage change in the value of an investment without considering the time factor.

e) **Capital Asset Pricing Model (CAPM):** It is a financial model developed by William F Sharpe, which can be used to determine an appropriate expected return on an investment based on its risk and the overall market's return.

The results obtained from the analysis were verified using a t-test. A T-test is a statistical hypothesis test used to determine if there is a significant difference between the means of two groups.

Study Objectives

a) To study the growth trajectory of ESG-themed investments in India.

b) To compare the performance of Indian ESG indices and global indices.

c) To analyse the risk-adjusted returns of the ESG investment products available in India and compare them with the broad market benchmark.

Hypotheses

a) $H0_a$: There is no significant difference in the mean returns of the Indian and Global ESG indices.

$H1_a$: There is a significant difference in the mean returns of Indian and Global ESG indices.

b) $H0_b$: There is no significant difference in the mean returns of ESG mutual funds and the broad market index.

$H1_b$: There is a significant difference in the mean returns of ESG mutual funds and the broad market index.

Results

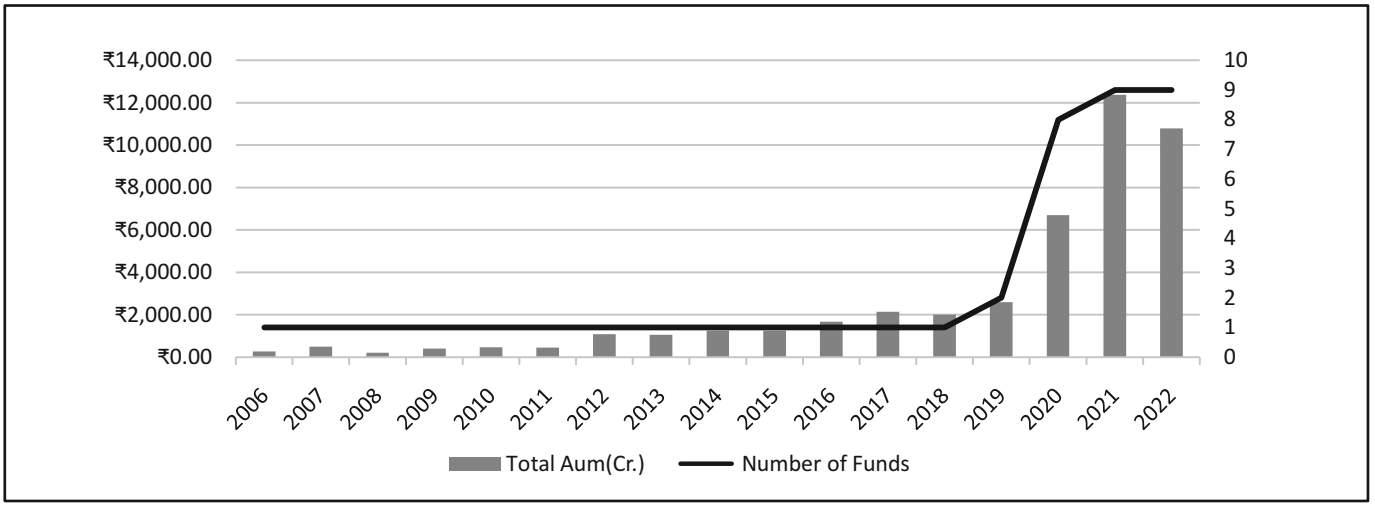
To assess the popularity of ESG investing among investors in India, the growth pattern of the total AUM of the ESG thematic mutual funds has been assessed as follows:

Table 2: Total AUM and YoY Growth with Number of funds

Year	Total AUM (in crores)	AUM	Number of Funds
Dec-06	₹265.98	-	1
Dec-07	₹494.45	86%	1
Dec-08	₹212.30	-57%	1
Dec-09	₹407.22	92%	1
Dec-10	₹466.01	14%	1
Dec-11	₹452.34	-3%	1
Dec-12	₹1,083.87	140%	1
Dec-13	₹1,052.84	-3%	1
Dec-14	₹1,250.92	19%	1
Dec-15	₹1,251.55	0%	1
Dec-16	₹1,667.56	33%	1
Dec-17	₹2,136.79	28%	1
Dec-18	₹2,011.88	-6%	1
Dec-19	₹2,598.18	29%	2
Dec-20	₹6,699.10	158%	8
Dec-21	₹12,365.81	85%	9
Dec-22	₹10,781.54	-13%	9

Source: Association of Mutual Funds in India

Graph 1: Time Series showing Growth in total AUM and number of ESG funds

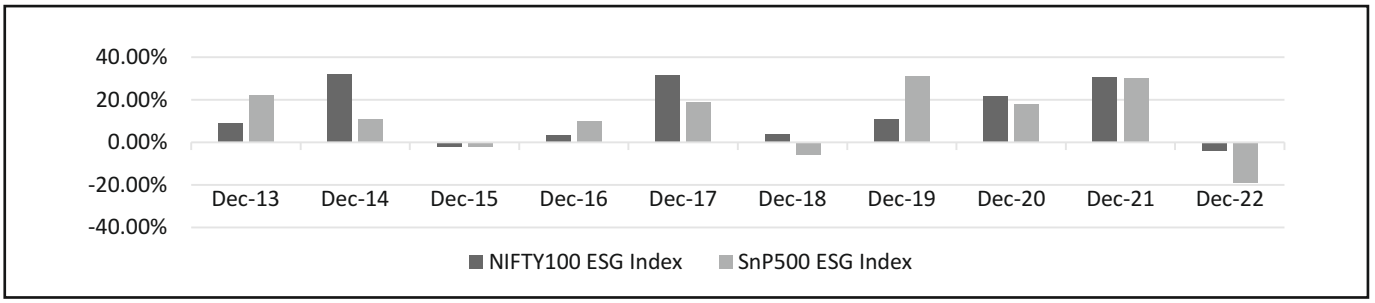


Graph 1: Time Series showing Growth in total AUM and number of ESG funds

The graph above shows the total AUM of all ESG-themed mutual funds available for investors in India. As can be seen from the graph, the advent of ESG funds began in 2005 with the launch of the SBI Magnum Equity ESG scheme which remained the sole operational scheme for more than a decade. It was only in 2019 that another fund house, Quantum India, launched its ESG-themed fund, and since then, the number of such funds has been on the rise, with nine fund houses having their ESG-themed fund presently operational in India. If we look at the YoY growth of the total AUM of the schemes, it was very volatile, ranging from -57% to 140%. The AUM of these schemes increased from Rs. 265.9 Cr. in 2006 to Rs10,781.54 Cr. in 2022 at a CAGR of approximately 24.33%.

Comparison of the Indian ESG index (Nifty100 ESG index) with the US ESG index (S&P500 ESG index)

Graph 2: NIFTY100 ESG Vs. S&P500 ESG: Annual Return Comparison



Source: Nifty Indices and S&P Global

The graph above depicts a comparison of the NIFTY100 ESG index with the S&P500 ESG index. It can be inferred from the above graph that in the last 10 years, the Indian index has outperformed the US index on the majority of occasions, with a higher average annual return of 13.67% compared to 11.40% of the US index.

Table 3: t-Test: Paired Two Sample for Means of annual returns of Nifty100 ESG and S&P500 ESG

	Nifty100 ESG	S&P500 ESG
Mean	0.136704998	0.114064282
Variance	0.020156079	0.026152961
Observations	10	10
df	9	
t Stat	0.556090154	
P(T<=t) two-tail	0.59170378	
t Critical two-tail	2.262157163	

Source: Author's calculations based on secondary data

Further, a paired sample t-test was performed to compare the mean annual returns of the two indices, and it was found that the difference between the returns of NIFTY100 ESG (mean: 13%, variance: 2.01%) and S&P500 ESG (mean: 11.4% and variance: 2.61%) was insignificant, t(9)=2.262, p=(0.591). This means that the returns of the index are at par with those of the US index. Hence, the null hypothesis has been accepted.

Table 4: Annualised and absolute return comparison of NIFTY100 ESG Vs. S&P500 ESG

	Annualized Returns		Absolute Return	
Returns	*Nifty100 ESG*	*S&P500 ESG*	*Nifty100 ESG*	*S&P500 ESG*
1 Year	-4.23%	-19.00%	-4.23%	-19.00%
3 Year	15.02%	7.35%	52.18%	23.69%

5 Year	11.92%	8.74%	75.59%	52.00%
10 Year	12.88%	10.24%	235.90%	165.08%

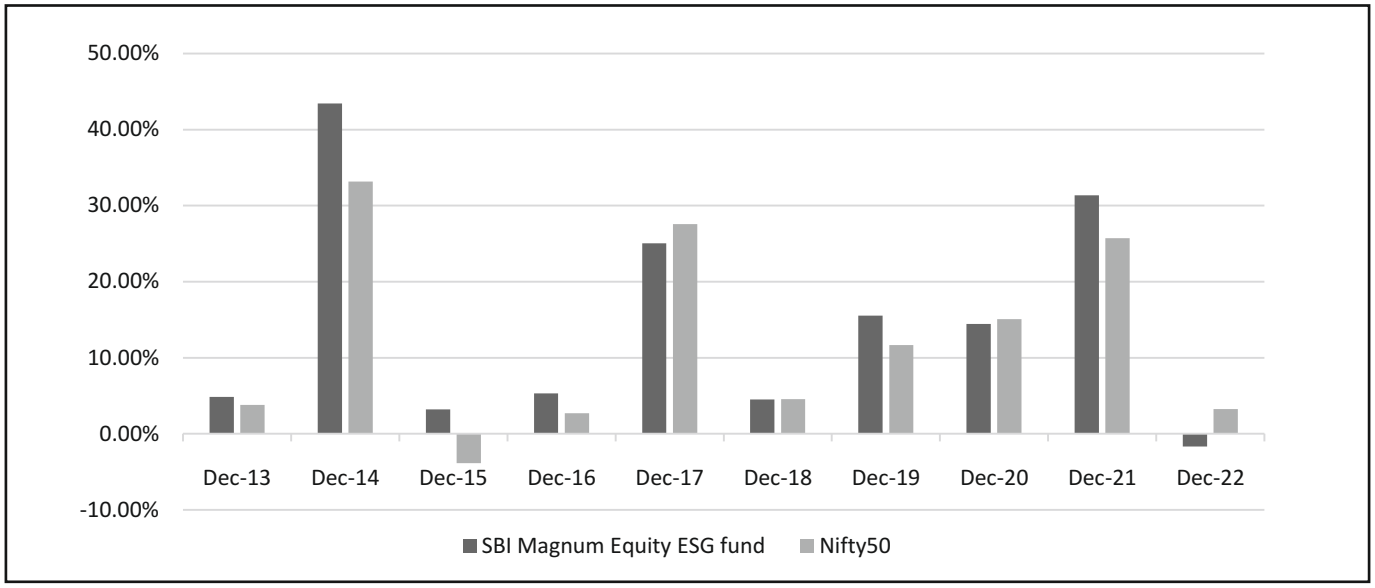
Source: Author's calculations based on secondary data

The analysis of the performance of the two indices during time frames of 1 year, 3 years, 5 years, and 10 years, it was found that the annualised returns of the Indian index have been better than its US counterpart in all time frames, with the maximum outperformance in the last 3 years. Also, in the last 10 years, on an absolute basis, the Indian index has provided a return of 235.90% approx. whit the US index has provided a return of 165.08%.

Indian ESG fund performance (SBI magnum ESG) vs Nifty50 (market index)

To compare the performance of Indian ESG funds with the broad market index, we have taken the SBI Magnum Equity ESG fund as the proxy for the entire category, as it is the longest-operating fund in this category and the rest of the funds are at a very nascent stage. and compared it with that of Nifty50.

Graph 3: SBI Magnum Equity ESG Fund vs Nifty50Annual Return Comparison



Source: Author's calculations based on secondary data

The graph above shows that the SBI Magnum Equity ESG fund outperformed the NIFTY50 in six years in the past 10 years.Further, the CAGR of the SBI fund in the past 10 years is 14.61%, while that of NIFTY50 is 11.74%.This suggests that the ESG theme outperformed the market quite convincingly.

Table 5: t-Test: Paired Two Sample for Means of annual returns of SBI Magnum Equity ESG fund Nifty50

	SBI Magnum Equity ESG fund	Nifty50
Mean	0.146053869	0.1236442
Variance	0.021107141	0.0158315
Observations	10	10
df	9	
t Stat	1.536528798	
P(T<=t) two-tail	0.158784933	
t Critical two-tail	2.262157163	

Source: Author's calculations based on secondary data

A paired sample t-test was performed to compare the mean annual returns of the SBI Magnum Equity ESG fund and the Nifty50, and it was found that the difference between the returns of SBI (mean: 14.60%, variance: 2.11%) and NIFTY50 (mean: 12.36% and variance: 1.58%) was insignificant, t(9)=2.262, p=(0.158).This suggests that the mean annual returns of the SBI Magnum Equity ESG fund were similar to those of Nifty50.Hence, we accept the null hypothesis $H0_b$.

Performance Evaluation of SBI Magnum Fund and its Comparison with the Benchmark (Nifty ESG 100)

Table 6: Performance evaluation of SBI MAGNUM FUND

	10 Year	5 Year	3 Year	1 Year
Beta	0.9676	0.9677	0.9824	0.9179
SBI Return (CAGR)	13.82%	12.28%	13.91%	-1.68%
Nifty ESG 100 (CAGR)	12.70%	11.92%	15.02%	-4.23%
Alpha	0.05%	0.52%	0.72%	-0.54%
Standard Deviation	4.7%	5.413%	6.285%	4.399%
Sharpe Ratio	0.0265	0.3235	0.3763	-0.0019

Source: Author's calculations based on secondary data

From the above table, it is evident that the beta of the fund is less than 1 in all time frames, which shows that the fund has shown less volatility than the index, that is, Nifty100 ESG. Further, the fund has beaten its benchmark in 10-, 5-, and 1-year timeframes. The alpha of the fund has remained positive in the long term but has fallen below zero in the past 1 year. Regarding the riskiness of the fund, its standard deviation falls as the investment horizon increases from 6.2%(3 years) and 5.41%(5 years) to 4.7% (10 years).

As far as the risk-adjusted returns are concerned, the fund has a poor Sharpe ratio ranging between -0.0019 and 0.37.

Discussions

First, the study shows that the ESG style of investing, even though it had a slow growth rate, has picked up pace recently with more investment options being offered by the AMCs, and also because the theme of ESG has started to gain more popularity among investors as they have started to look beyond higher returns.In addition, as the number of schemes offered under the ESG theme has increased over the years, the AUM of these funds has also seen a proportionate rise.The YOY growth in the AUM of these funds was almost 24.3%. Second, the comparison between NIFTYESG and SNPESG shows that the Indian index has outperformed its US counterpart in the past 10 years. The Indian index annualised growth of 12.88%, while its counterpart has only provided returns of 10.24% annually. Furthermore, the study shows that the mean returns of the US index are around 11.4%, while that of the Indian ESG index is around 13.67%.In addition, the variance in annual returns of the Indian index is lower than that of the US index. This shows that ESG-based investments in India have performed better than those in the US.

In addition, the performance of the ESG-themed fund (SBI Magnum ESG fund) against the broad market index (NIFTY50) was good, as the mutual fund selected for the study was able to outperform the index as the mean annual return of the two instruments for the past 10 years was 14.6 and 12.36%, respectively. However, in the short term, the performance of the fund has been quite underwhelming. Finally, if we look at the performance of the SBI Magnum ESG fund in isolation, the fund has a beta of almost 1 and has consistently provided an alpha of half a per cent over different time periods. In addition, the risk of the fund is also on the lower side, ranging between 4% and 5%.

Conclusion

Sustainable investing refers to the range of practices that an investor might follow to earn returns on their investments while also contributing to social and environmental well-being.In this investment process, a focus is placed not only on the financial performance of the companies under consideration but also on their social contributions made by them. The sustainable

investing framework mainly consists of three primary areas: Environmental, Social and Governance. Hence, ESG investing is a prominent approach that investors might follow in their journey of sustainable investing and becoming responsible investors.

ESG investing considers environmental, social, and governance scores as non-financial factors that may be used to measure an investment's sustainability and to ensure that the companies being funded are responsible corporate citizens and have acknowledged their responsibility towards the environment as well as society. However, ESG investing requires a detailed analysis of the ESG performance and ratings of the companies based on different aspects, which is a complex and time-consuming process. ESG mutual funds have recently come in to solve this problem, whereby the entire job to scrutinise the top ESG companies is done by the fund manager. Hence, retail investors can take up responsible investments through ESG-focused mutual funds.

Based on the findings of this study, it becomes apparent that Environmental, Social, and Governance (ESG) investing is in its early stages as an investment theme within the Indian market. The majority of mutual funds associated with ESG have emerged over the past two to three years. The existing literature underscores the notion that ESG investments are oriented towards the long term, necessitating a considerable span of time to truly showcase their effectiveness. As a result, making definitive judgments about the performance of ESG funds in India at this juncture is premature. Despite this evolving landscape, there are some promising signs of growth. Notably, the performance of the Indian ESG index is on par with that of its US counterpart, a noteworthy observation given that ESG investment has only recently gained substantial popularity. This achievement of the Indian ESG index is particularly commendable, considering the relatively short duration over which ESG investment has been a significant player in the investment arena.

While it remains too soon to draw comprehensive conclusions about the performance of ESG funds in the Indian context, the trajectory thus far exhibits promising potential. The synchronicity between the performance of the Indian ESG index and its US equivalent provides a glimpse into the positive direction that ESG investment in India is taking. As the landscape continues to evolve and more historical data accumulate, a more detailed and nuanced understanding of the performance and impact of ESG funds in India is likely to emerge.

References

AUM data. Dataset. In Average AUM. AMFI. https://www.amfiindia.com/research-information/aum-data/average-aum

Beloskar, V. D., and S. N. Rao. 2022. "Did ESG save the day? Evidence from India during the COVID-19 crisis." Asia-Pacific Financial Markets 1-35.

Breedt, A., S. Ciliberti, S. Gualdi, and P. Seager. 2019. "Is ESG an Equity Factor or Just an Investment Guide?" The Journal of Investing 28 (2): 32-42.

Folger-Laronde, Z., S. Pashang, L. Feor, and A. ElAlfy. 2022. "ESG ratings and financial performance of exchange-traded funds during the COVID-19 pandemic." Journal of Sustainable Finance & Investment 12 (2): 490-496.

Giese, G., L. E. Lee, D. Melas, Z. Nagy, and L. Nishikawa. 2019. "Foundations of ESG investing: How ESG affects equity valuation, risk, and performance." The Journal of Portfolio Management 45 (5): 69-83.

Henriksson, R., J. Livnat, P. Pfeifer, and M. Stumpp. 2019. "Integrating ESG in portfolio construction." The Journal of Portfolio Management 45 (4): 67-81.

India 10-Year Bond Historical Data. 2023, March 2. Investing.com India.https://in.investing.com/rates-bonds/india-10-year-bond-yield-historical-data

Sarangi, G. K. 2021. "Resurgence of ESG investments in India: Towards a sustainable economy." ADBI Working Paper Series 1284.

Meziani, A. S. 2014. "Investing with environmental, social, and governance issues in mind: From the back to the fore of style investing." The Journal of Investing 23 (3): 115-124.

Nifty50. Dataset.In the Historical Data Nifty50. NSE. https://www.niftyindices.com/reports/historical-data.

NIFTY ESG 100. Dataset.https://www.niftyindices.com/indices/equity/thematic-indices/nifty100-esg

Nifty100ESG. In NSE. NSE. https://www1.nseindia.com/content/indices/Factsheet_NIFTY100_ESG_Index.pdf

Reiser, D. B., and A. Tucker. 2019. "Buyer beware: Variation and opacity in ESG and ESG index funds." Cardozo Law Review 41: 1921.

Raghunandan, A., and S. Rajgopal. 2022. "Do ESG funds make stakeholder-friendly investments?" Review of Accounting Studies 27 (3): 822-863.

S&P500 ESG. Dataset. In S&P 500 ESG Index. S&P. https://www.spglobal.com/spdji/en/indices/esg/sp-500-esg-index/#overview

S&P500ESG Factsheet. Press release.https://www.spglobal.com/spdji/en/indices/esg/sp-500-esg-index/#overview

Seth, R., S. Gupta, and H. Gupta. 2020. "ESG investing: A critical overview." HANS SHODH SUDHA 2 (2): 69–80.

Sharma, A. 2023. "The Remarkable Rise of ESG In India." TaxGuru.https://taxguru.in/corporate-law/remarkable-rise-esg-india.html

Tiwari, R., A. Singh Chauhan, P. Aggarwal, S. Goel, R. Sharma, V. Chaudhary, K. Kumari, and S. Kumari. 2022. "ESG Investments for Sustainability with Superior Returns in Indian Equity Market." YMER 21 (11): 777–783.

Wimmer, M. 2013. "ESG-persistence in socially responsible mutual funds." Journal of Management & Sustainability 3: 9.

Yue, X. G., Y. Han, D. Teresiene, J. Merkyte, and W. Liu. 2020. "Sustainable funds' performance evaluation." Sustainability 12 (19): 8034.

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VALUE ADDITION THROUGH EDUCATION

Examining the Effectiveness of Environmental Policies in Promoting Sustainable Economic Growth in India

Abstract

This paper examines the evolution and impact of environmental regulations in India over the past three decades, highlighting their connection to sustainable economic growth. The study explores socio-economic and environmental dynamics at the grassroots level of villages like Kakroi, Rai, and Bhalgarh. It addresses challenges posed by climate change, resource limitations, and externalities, emphasizing the importance of Sustainable Economic Development (SED). The research goes beyond a narrow focus on climate change, advocating for a balanced approach that integrates economic, social, and environmental objectives. The paper highlights environmental laws and initiatives in India, examining the drivers of climate change in policy discussions. Despite advancements in education and governance, it recognizes the prevailing issues like literacy gaps, poverty, and structural inequalities. The study proposes an approach after evaluating the India's efforts to blend environmental conservation with economic progress. It offers a model for a green economy and sustainable development in the context of the selected villages.

Ramesh Kumar[1]

Keywords: *Environmental Policies, Policy Integration, Green Economy, Natural Resource Management, Climate Action, Ecological Sustainability.*

Introduction

There has been a substantial amount of change in India's environmental rules over the course of the last three decades. Various policy solutions have been implemented in response to emerging concerns, both local and foreign. 1988's The Forest Policy and 1992's The Policy Statement for Abatement of Pollution are both examples of policies. These regulations cover a wide range of issues, including the management of trash, the conservation of biodiversity, and efforts to reduce pollution in the air and water. On the other hand, the initiatives have maintained their primary focus on preserving the environment and addressing the needs of the local community from the beginning.

In order to provide the framework for integrating environmental concerns into the policies of various sectors, this research will concentrate on India's response to both present environmental issues and future environmental challenges. Through an examination of secondary sources, this study endeavours to ascertain, in the context of policies pertaining to the environmental sector, the variables that have contributed to the inclusion of concerns about climate change on the agenda of policymakers.

There are not many resources available, there are not many externalities, and the environment is uncertain, therefore the expansion of India's economy is fraught with problems. Taking the path of sustainable development (SD) is one approach that may be used to address this issue. In contrast to a climate-centric approach, which would result in enormous costs for adaptation and mitigation, a path towards sustainable development not only lowers the costs of mitigation but also opens the door to the realisation of co-benefits without compromising the purpose of the nation, which is to improve social and economic development. In order for the climate action plan to be successful, it is essential that it continues to function within the framework of sustainable development. To put it another way, political leaders would be more responsive to climate action plan proponents who focus their work on sustainable development, and the plan would have a greater chance of reaching its inevitable end. It is imperative that we maintain our dedication to this core idea and develop a framework that is in accordance with it in order to discover a solution that will persist. The country of India is a multi-dimensional and very diverse nation that is full of seeming contradictions. A low literacy

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rate and great poverty are two problems that plague the nation, despite the fact that it places a strong priority on education. The most powerful democracy in the world is characterised by weak law enforcement and widespread corruption.

Study Objectives

- To Analyze the Effectiveness of India's Environmental Policies in Promoting Sustainable Economic Growth:
- To Investigate the Integration and Outcomes of Sustainable Development Strategies within India's Economic Framework:
- To Evaluate the Role and Impact of India's Participation in International Environmental Initiatives on Local Sustainable Economic Growth:

Research Methodology

The methodology of this study involved a multi-faceted approach to comprehensively understand the dynamics of environmental regulations and sustainable economic growth within the selected villages: Kakroi, Rai, Bhalgarh, Jatjoshi, Kundli, Murthal, Bayayanpur, Fazalpur, Asawarpur, and Badmalk. Primary data was collected through field surveys, interviews, and interactions with local inhabitants, policymakers, and experts in environmental law and sustainable development. Secondary data was gathered from an extensive review of literature, including government reports, legal documents, scholarly articles, and historical records of environmental policies and economic growth patterns in India. The study employed qualitative analysis to unravel the complex interlinkages between environmental regulations and socio-economic variables in the rural milieu. Comparative analysis was also utilized to identify patterns, challenges, and opportunities across the different villages, thereby providing a nuanced understanding of the localized impact of environmental policies and their integration with economic and social objectives.

Legislative Framework

The current legal framework is mostly comprised of the following statutes: "the Environment Protection Act of 1986, the Water Cess Act of 1977, the Water (Prevention and Control of Pollution) Act of 1974, and the Air (Prevention and Control of Pollution) Act of 1981. The Wild Life (Protection) Act of 1972, the Biodiversity Act of 2002, the Indian Forest Act of 1927, and the Forest (Conservation) Act of 1980" include the legislation pertaining to the management of forests and biodiversity. On top of the provisions that are included in these core laws, there are a number of other legislation that augment them. There have been a number of sector policies that have contributed to environmental management. These policies include the National Water Policy from 2002, the National Agriculture Policy from 2000, and the National Conservation Strategy and Policy Statement on Environment and Development from 1992 and 1992, respectively. The papers in question include the current national policies that are in place for the management of the environment. At the same time as each of these policies has recognised the significance of sustainable development within the context of its own particular framework, they have also established strategies to bring that vision into fruition. In light of the most recent facts and the lessons learned from the past, the National Environment Policy intends to widen the scope of the policy and correct any gaps that may still exist. It is not intended to replace the policies that were previously in existence.

Drivers of Climate Change

Individuals from all walks of life have come to recognize the significance of the natural resources of our country in terms of their ability to sustain our economy and guarantee the continuance of ecological services that are important to our survival. When seen from this vantage point, it has been abundantly evident for a considerable amount of time that in order to effectively manage the environment, it is vital to have a coordinated plan that incorporates a broad variety of sectors and cross-sectoral activities, as well as fiscal measures. In light of the fact that our development challenges have evolved and that we are now aware that environmental concerns are essential to development, it is vital to examine the objectives, policy instruments, and strategies that were previously in place for development. As a result of this dynamic, a policy framework that is capable of adjusting to new situations is required. This framework should also have an intrinsic system for monitoring progress and making modifications as required. The enhancement of human well-being, in its widest sense, is at the core of India's development philosophy, which often circles back around to the subject of sustainable development. First, that everyone should have access to a decent standard of living; second, that people should learn to appreciate the limited resources of the biosphere; and

third, that the pursuit of ecological sustainability and social justice should not be mutually exclusive. These are the three fundamental goals that form the basis of the current agreement.

In order to make this a reality, it is necessary to satisfy the economic, social, and environmental requirements of the nation in a way that is both balanced and harmonious. In addition, India is a significant participant in a number of important environmental initiatives running on a worldwide scale. By virtue of its status as a party to significant international treaties, it recognises the transboundary character of a number of environmental concerns and the interdependencies that exist between them. Additionally, India has the expectation that its National Environment Policy (NEP) would serve as a proclamation of its intention to constructively contribute to environmental activities that are being undertaken on a worldwide scale. In light of the constitutional obligations for a pristine environment that are included in Articles 48 A and 51 A (g), as well as the strengthening impact that Article 21 has via judicial interpretation, the United States of America has formed the National Environmental Policy. It is common knowledge that maintaining a clean environment is not only the responsibility of the state, but also of each and every individual. Through our collective efforts, we have the ability to guarantee that every facet of environmental management in the country is carried out with a spirit of collaboration. In spite of the fact that the government need to strengthen its efforts, each and every individual and organisation has a part to play in the process of maintaining and enhancing the environment. These conditions served as the impetus for the formulation of the National Environment Policy, which seeks to integrate environmental concerns into each and every facet of development. It provides a concise summary of the most significant environmental issues that the country is now facing and will continue to confront in the future, as well as the objectives of environmental policy, the normative principles that serve as the basis for policymaking, intervention tactics, and general trends in the development of legislative and institutional frameworks. (The National Policy on the Environment, 2008)

Green Economy for Sustainable Development

Investments in natural capital are highly valued in a green economy. Ecosystem services are more effectively preserved, which boosts rural low-income families' incomes and safety nets. For subsistence farmers, environmentally friendly agricultural techniques greatly increase yields. Green economy methods may assist reduce poverty via innovations in non-grid energy (solar power, biomass stoves, etc.), improvements in sanitation and access to freshwater, and other measures. In order to combat climate change, provide good employment, and lessen reliance on foreign imports, a green economy would use renewable energy and low-carbon technology in place of fossil fuels. Offsetting "brown economy" employment losses, emerging technologies that promote energy and resource efficiency provide development opportunities in new fields. Improvements in waste management, expansion of public transit, construction of environmentally friendly structures, and reduction of food waste are all examples of how resource efficiency has emerged as a key issue. (UNEP, 2011)

Important for providing direction are regulations, standards, and objectives. However, developing nations should be given the space and time to progress according to their own development goals, conditions, and limitations. The developed world must play a pivotal role in preparing poor nations to join the green economy by establishing international markets and the legal framework necessary for it. Achieving a green economic transformation requires managing enabling circumstances and providing appropriate financing, but these goals are certainly within reach. Subsidies that have negative effects on society and the environment should be eliminated since they discourage good behaviour.

But under some conditions and for certain lengths of time, the environmentally friendly economy may be advanced via the prudent use of subsidies. To finance the change, we may use taxes and other market-based tools to encourage investment and innovation. A green economic transformation would need substantial funding, but this may be achieved via well-planned public policies and creative funding solutions.

In the short term, a green economy may provide the same amount of growth and jobs as a brown economy, but in the long run, it will be more effective and provide greater social and environmental advantages. Naturally, there are a lot of obstacles and dangers to face. It will need the combined efforts of prominent corporations, members of civil society, and international leaders to make the switch

to a green economy. Rethinking and redefining conventional metrics of wealth, prosperity, and well-being will need persistent work by both policymakers and their constituents. Nevertheless, continuing as before might be the most dangerous option. (UNEP, 2011)

Pathways to Sustainable Economic Development

Making use of synergies and promoting long-term development by easing scarcities, a comprehensive policy agenda that incorporates greening of a variety of major economic sectors is essential. Interconnected policies are more effective than those that ignore certain industries. Improving energy efficiency in critical industries like construction, transportation, and manufacturing may bolster efforts to reduce greenhouse gas emissions and increase the use of renewable energy sources. Soil quality and water retention are two ways in which more forest land may benefit agricultural output and rural lifestyles. Investments in waste management may be redirected to sectors like waste-to-energy by integrating recycling and remanufacturing activities, which reduces the demand for developing that sector. Energy use is strongly correlated with water demand, and vice versa.

“Green economy and inclusive growth" is quickly becoming a term in India as the Rio+20 Earth Summit, which is happening in just a few weeks, approaches. Actually, after a dip in interest after the United Nations Climate Change Conference (COP 17) in December 2011, there is fresh zeal for green economics and the role it may play in improving India's future. A low-carbon, green economy seems to be a natural fit for India. When it comes to renewable energy investment opportunities, Ernst & Young ranks India as the fourth most desirable nation in 2012. Investors from throughout the globe seeking stable investment opportunities are encouraged by the country's reputation for having the world's second-largest pool of scientists and engineers. In addition, India's profile was boosted by its IT accomplishments over the last decade. However, the country's ranking dropped from fourth to eighth in 2013 as a result of various obstacles, such as its high financing costs and entry barriers for foreign investors. (Ernst &Young, 2013)

But the most compelling reason is that India just cannot afford to stay behind in the green economy. As of now, India's old economic model has helped the country do well economically and accumulate riches, but it hasn't been able to reduce inequality. Actually, more and more conflicts of all kinds have resulted from rapid industrialization. The feud between industrialists, particularly miners, and farmers/forest inhabitants is the most worrisome. Officially, the greatest danger to India's internal security today comes from violent rebellions like the Maoist insurrection, which have been bolstered by this struggle. To top it all off, according to the Climate Disclosure Project, India's GDP growth would be minus 9-13% by the year 2100 if the present climate business as usual scenario persists. This is a direct result of the ways in which businesses and people's livelihoods will be affected by climate change. Clearly, this isn't the way an up-and-coming economic force wants to go into the future. Therefore, India's top priority right now should be to find a way to achieve sustainable development.

As environmental concerns grow among the public, there will be increasing pressure on lawmakers to enact legislation that is more beneficial to the planet. For example, the laws for new mining and land acquisition for industrial development, the Mines and Minerals Development and Regulation Act 2013 and the Land Acquisition, Rehabilitation and Resettlement Act 2013 are both outcome of the environmental consciousness in India. Nevertheless, it would be ignorant to believe that India would be propelled into the developed countries league alone by fully engaging with the Rio+20 conference or its agenda, regardless of these lofty hopes. Just because it's a greener alternative doesn't mean it will solve all of society's problems. In a country like India, where over half of the population lacks access to clean water, healthcare, and other essentials like toilets, the biggest obstacle isn't coming up with a concept, but rather systematically putting it into practice. Over 300 million people live below the poverty line in India. As an example, consider the solid waste management (SWM) industry in India.

The Indian government reports that daily urban solid garbage production exceeds 115,000 mega tonnes. The government has enlisted the help of several private sector organisations with an outstanding team of SWM specialists in an ongoing endeavour to improve the management of this waste on a national scale. The overall goal, at the national level, is to create employment while maintaining a clean and environmentally friendly nation. At the same time, this has jeopardised the life of at least fifteen million impoverished people who are able to

recycle garbage for a job, but whose talents go unrecognised. In this instance, the lack of a comprehensive strategy for implementing the ideas of a green economy and equitable development is preventing them from effectively combating poverty and unemployment. *(Goffman, 2008)*

While in India recently, ShaZukang – who is also the Secretary-General of the 2012 United Nations Conference on Sustainable Development and the Under-Secretary-General for Economic and Social Affairs – emphasized the need of this comprehensive approach: Integrating and guaranteeing consistency across the social, economic, and environmental pillars is, by definition, what sustainable development is all about. However, this is hardly a walk in the park in reality due to the fact that our issues and difficulties are not unique. It is essential that these three pillars be practically united in Rio+20 in order for nations to have faith that the social agenda, the environmental agenda, and the economic agenda are complementary to one another. The fact that the nations' agreement on sustainable development from 20 years ago has not been completely implemented is due, in large part, to the ongoing conflict between the "global north" and the "global south," which Zukang also brought to light. *(ShaZukang, 2012)*

During a recent news conference in New Delhi, Jayanthi Natarajan, India's minister of environment and forests, said that the country is very concerned about green economy and equitable development, but that three things are essential for the agenda to be successful in practice. Among these, we must: a. reiterate the Rio Principles; b. strengthen institutional capacities on a global, regional, and local level; and c. give special attention to initiatives that aim to include and improve the lives of people from lower socioeconomic backgrounds. Furthermore, the minister emphasised that cooperation among states is crucial for the success of Rio+20. For India, the minister's remarks capture the essence: the nation is very interested in and needs a green economy, but it should be practical about how it may materialise. For instance, India is worried about how Rio+20 would turn out. Concerns have been raised that wealthy nations may want to alter or renegotiate the Rio Principles, particularly the "common, but differentiated responsibilities" (CBDR) premise, which India finds intolerable. Furthermore, India is concerned that wealthy nations may attempt to impede developing nations' exports via tariffs and non-tariff obstacles, assistance conditionalities, and a refusal to alter their own consumption habits – which, in India's view, is essential for developing nations to attain sustainable development. Above all else, India is not yet sure that its large impoverished populace would not suffer any negative effects from a green economy. Because of this, India is making it clear that ending poverty must be the central goal of any green economy strategy, and that individual nations should be free to choose their own ways to sustainable development in accordance with their own priorities and conditions. *(Jayanthi Natarajan, 2012)*

Although it won't solve all of India's problems overnight, a green economy is clearly the best course of action right now. Without robust policy execution, no amount of knowledge or technology can save the environment (or anything else for that matter). When it comes to environmental governance, India should be well-prepared in many respects. The World Bank states that "India has strong environment policy and legislative framework and well-established institutions at the national and State level" . In addition, it is often believed that democracies that encourage active citizen engagement are better able to detect and address environmental crises. And, India's expanding wealth is causing "an increase in public demand for better environmental quality from the growing and increasingly assertive urban middle class, as demonstrated by drastic measures to improve air quality in Delhi, which now has the largest compressed natural gas-driven public bus fleet in the world". Regular elections are one benefit of a working democracy, but other broad platforms for public engagement are lacking in India. Having a big, loud public that can effectively communicate its wants is hindered by poverty and a lack of technical infrastructure. In addition, "barriers of distance, language, literacy, and connectivity - all the factors of particular relevance to India due to the remoteness of many habitations, multiple languages, and significant illiterate population - can also prevent full participation". *(World Bank, 2007)*

Another major obstacle to environmental policy implementation is corruption, which often takes the shape of bribes paid to public officials. "Indian democracy permits great freedom of activity and association, and the pursuit of different ideas and

interests", comments one observer. However, in this democratic system, laws and regulations are either disregarded or twisted almost as often as they are followed. *(Kapoor, 2004)*

Thus, there is escalating friction between the rising number of people demanding environmental preservation and the reality of the situation. A more outspoken, engaged, and impatient 'green' group in India is causing more and more discontent with the current environmental management system, according to the World Bank. A wide range of stakeholders see the current situation as insufficient, notwithstanding a few triumphs. Weak enforcement of rules and regulations is largely to blame.

The Environmental Impact Assessment (EIA) is an important tool for environmental policymakers since it determines how different activities will affect the environment. Environmental impact assessments (EIAs) have grown into a powerful tool for environmental protection worldwide since their 1969 inception in the US. Public involvement is fundamental to environmental impact assessments (EIAs), which are based on the premise that local communities are best suited to assess their own needs and the consequences of environmental deterioration. Given India's history of democracy, the country seems to be in a good position to implement EIA. However, there is a lack of local involvement, and similar to China, India's short-term economic success is often dependent on inefficient implementation of environmental rules at the local level. The prioritisation of economic expansion above environmental concerns is a common perception in reality. But fundamental environmental regulations in India are robust. More than 2,000 people were killed and tens of thousands were wounded in the 1984 Bhopal tragedy, when a pesticide facility accidentally released deadly gas. As a result, the government passed new environmental legislation. "Protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution" was the stated goal of the Environmental (Protection) Act from 1986. To enhance environmental protection, EIA was implemented in 1994 by India's primary environmental agency, the Ministry of Environment and Forests (MoEF). At first, there was a lack of public involvement and inadequate protection against a wide range of activities, including deforestation and improper trash disposal. But certain parts of the legislation have been strengthened by legislative amendments. *(Lemmer, 2007)*

Conclusion

The intricate landscape of environmental policy enforcement in India has often leaned heavily on litigation, primarily due to the institutional inadequacies or lack of political will to implement environmental regulations effectively. A pivotal moment was marked in 1985 when the Indian Supreme Court intervened to close limestone quarries polluting the water sources, demonstrating the courts as not just the last but often the first resort in environmental remediation in India. This reliance on the judiciary underscores the challenges faced by regulatory bodies and the importance of strong legal frameworks in environmental governance.

In the rural heartlands of India, including the villages of Kakroi, Rai, Bhalgarh, Jatjoshi, Kundli, Murthal, Bayayanpur, Fazalpur, Asawarpur, and Badmalk, informal regulation has emerged as a complementary force in shaping environmental practices. These mechanisms, driven by community actions and social pressures such as negative media coverage, have shown potential in addressing localized environmental issues. Although partial in nature, community-driven actions, including demands for compensation, social ostracism, or even threats of physical violence, have been instrumental in targeting egregious polluters and bringing attention to environmental degradation at the grassroots level. These strategies, while not substitutes for comprehensive government enforcement, highlight the role of community vigilance and action in environmental stewardship.

India's contemporary environmental policy, recognizing the limits of localized actions in an interconnected world, advocates for strong local governance and practices that address environmental and justice concerns in tandem. This approach, while laudable, faces the paradox of balancing economic growth and environmental sustainability in a world where technological advancements are both a necessity and a subject of community skepticism. The villages studied in this research reflect the microcosm of this global challenge, grappling with the need to improve living standards while mitigating environmental stress. The rapid population growth in India further accentuates this challenge, placing immense pressure on natural resources and necessitating a harmonious blend of

social expectations, technological innovation, and environmental consciousness.

The journey towards a sustainable future, marred by the complexities of increasing population, escalating demands, and environmental degradation, demands a multifaceted approach. Leveraging technology, fostering sound governance, and nurturing responsible social behaviors stand as crucial pillars in this journey. The adoption of 'green' solutions, driven partly by moral obligation and significantly by self-interest and commitment, offers a glimmer of hope. However, the persistent specter of corruption poses a formidable barrier to the effective implementation of environmental legislation. The collective experiences and actions within the villages of Kakroi, Rai, Bhalgarh, Jatjoshi, Kundli, Murthal, Bayayanpur, Fazalpur, Asawarpur, and Badmalk serve as a testament to the intricate dance between human aspirations and the planet's well-being. As India navigates this tightrope, the interplay of local actions, national policies, and global cooperation will determine the trajectory towards a balanced and sustainable future.

References

Amit K. Srivastva 2010 Traditional Solutions to Encounter Global Warming. Asian J. Management 1(1), pp.22-25 https://ajmjournal.com/AbstractView.aspx?PID=2010-1-1-5

Aruna Yagna Narayana G, R. Nageswar Rao, A.R. Aryasri. 2011. Biotech Ready Cluster and Climate at Genome Valley in Andhra Pradesh. Asian J. Management 2(1), pp.20 24. Available on: https://ajmjournal.com/AbstractView.aspx?PID=2011-2-1-4

Ernst & Young survey report 2013.

Ethan Goffman, India and the Path to Environmental Sustainability, ProQuest is part of Cambridge Information Group, (www.cambridgeinformationgroup.com), http://www.csa.com/discoveryguides/india/editor.php, (Released February 2008).

Kathuria, V. 2007. Informal Regulation of Pollution in a Developing Country: Evidence from India. Ecological Economics 63, pp.403-417.

Kulveen Trehan, Iradeep Kaur. Motives and Modes of Social Responsibility in the Mediated Business Environment in India: Perspectives from the Industry. Asian J. Management; 6(4): Oct. - Dec., 2015 page 307-313. doi: 10.5958/2321-5763.2015.00045.1 Available on: https://ajmjournal.com/AbstractView.aspx?PID=2015-6-4-9

Lemmer, J. Winter 2007. Cleaning up Development: EIA in Two of the World's Largest and Most Rapidly Developing Countries. Georgetown International Environmental Law Review 19:2, pp. 275-301.

National Environment Policy, 2008.

ShaZukang, Under-Secretary-General for Economic and Social Affairs and Secretary-General of the 2012 UN Conference on Sustainable Development.

UNEP, 2011, Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication - A Synthesis for Policy Makers, www.unep.org/greeneconomy

World Bank. 2007. India: Strengthening Institutions for Sustainable Growth. Washington, DC. Kapoor, R. 2004. Plural Dreams: India in the 21st century. Futures 36, pp. 637-653.

World Bank. 2007. India: Strengthening Institutions for Sustainable Growth. Washington, DC.

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VALUE ADDITION THROUGH EDUCATION

Comprehending the Consumer Attitudes towards Sustainable Packaging for FMCG products: A Literature Review

Abstract

There has been growing concerns about the overconsumption and consumer spending in recent years. This excessive consumption is often linked to environmental degradation, resource depletion, and social inequality. As individuals and societies prioritize material possessions and instant gratification, it is important to sensitize people towards more conscious consumption. One such initiative could to switching to environmentally friendly packaging options. Sustainable packaging is designed to minimize negative environmental impacts, producing the least pollution during production, transportation, disposal, and recycling processes. The sustainable packaging promotes materials that enhance sustainability across their lifecycle. This paper focuses on sustainable packaging within the FMCG sector, given the essential role these products play in households. It explores various sustainable packaging methods and highlights companies that have adopted these practices. Through a literature review, the study investigates how consumers respond to sustainable packaging. This article provides an analytical perspective on consumers' preferences and needs regarding sustainable packaging, along with insights into how both consumers and brands view sustainable packaging.

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Keywords: *Sustainable Packaging, FMCG, Consumer, Recycle.*

Introduction

More quickly than before, the environment is changing around us, and for the worse. In addition to creatures being extinct and ice caps melting, the temperature is rising. Our everyday waste is increasing amid all of this, and greater. It is astounding how many non-biodegradable products we use on a daily basis. There isn't enough room for us to dump our trash right now. Consequently, fast-moving consumer goods (FMCG) play a crucial part in our usage of plastics and other non-biodegradable materials. The entry of Gen-Z into the workforce and its growing purchasing power necessitate vital organizational reforms. not simply to draw them in as clients but also as possible workers for a company that values social responsibility. Sustainability is currently the main concern in every society.

The Triple Bottom Line (TBL) strategy (Eilert, 2005) is totally dependent on effects on the environment, society, and economy. Packaging is important in all three of these aspects. For instance, economically, packaging can significantly reduce both direct and indirect operating costs through material substitution, optimized product management, efficient transportation, and effective storage. Socially, packaging can contribute to a more sustainable society by ensuring product safety and protecting workers through ergonomic design. Additionally, it can help mitigate food waste by reducing spoilage and facilitating proper handling. Environmentally, packaging can minimize its carbon footprint by optimizing the design and materials used throughout a product's lifecycle. This includes considerations such as recyclability, reusability, and biodegradable options.

The goal of this study was to analyze marketing trends in the FMCG industry related to sustainable packaging and how they impact customer perception and brand positioning. Investigate workable developments and technology for sustainable packaging as well. We think it helps to know the many elements that buyers consider before making a purchase. What encourages and discourages a purchase? In order to truly understand customers and develop businesses around them, these are crucial questions to ask. Although the elements that influence the consumer decision making cycle may already be known to us, it is crucial to comprehend the underlying causes of these components.

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Concerns about the climate and ecology around us have been openly expressed by Gen-Z in a very vocal manner. Businesses need to adapt as Gen Z enters the workforce and gains purchasing and decision making authority. This group sets the majority of the trends that we observe in today's world. As a result, we have decided to maintain them as our main focus. We're seeing a clear shift in the way brands communicate, with a greater emphasis on sustainability. Everyone, from established conglomerates to nascent startups, is searching for sustainable solutions for their businesses. It should come as no surprise that this is a result of the younger generation's ongoing and growing environmental awareness and concern. The purpose of the paper is to provide corporates and FMCGs with further insights on consumer behavior with reference to

Background

To be considered environmentally friendly, packaging should ideally meet one or more of the criteria of recyclability, use of recycled materials, biodegradability, or compostability. By prioritizing these factors, wasted can be reduced, conserve resources, and minimize the negative impact on the planet. This shift towards sustainable packaging practices is essential for creating a more environmentally responsible and sustainable future.For instance, carton has an advantage for its easy reusability and minimal environmental impact make it the most economical and ecological option. Even though cardboard doesn't last very long, it's a great material because it can be recycled easily. A cardboard box is more than 80% biodegradable; it should be emphasized. Glass is entirely recyclable and can be recycled back into new containers, hence its life cycle is unlimited. Its ability to preserve food and cosmetics makes it one of the most popular in the consumer industry.

Bioplastic or vegetable plastics are becoming more popular as a PET substitute. This sustainable substance is derived from vegetable starches like those found in potatoes, soybeans, and corn. Its creation resulted from the necessity to discover a material with properties comparable to plastic that was less polluting and instead came from renewable sources. It's an extremely adaptable, durable, and completely biodegradable substance. One such would be the biodegradable packaging of the bakery, cake, and pastry brand Dulcesol, which is part of the global food and distribution company Vicky Foods. Also, the material's sustainability is dependent on its carbon footprint, or the amount of work and resources needed to recycle it. A substance may be sustainable only because it is recyclable. Therefore, it is crucial to understand whether the sustainable pack satisfies consumer expectations and is consistent with the product and brand values as part of the businesses' sustainability strategy and commitment.

Environmental Impact of Sustainable Packaging

As sustainable packaging is better for the environment, consumers are switching to it. A sizable amount of municipal solid trash is made up of packaging and containers, according to a report from the Environmental Protection Agency (EPA) in the United States. 82.2 million tons of solid trash, or 28.1% of the total generated, were used in 2018 alone. Reusable and recyclable materials help you reduce this startling amount.

Although fossil fuel is a non-renewable resource, it is necessary for the creation of 99% of plastic items. Burning fossil fuels releases a lot of carbon dioxide into the atmosphere, which is one of the main greenhouse gas emissions. This emission is extremely bad for the environment and have the potential to worsen global warming. The designing packaging with a minimalist aesthetic helps to save natural resources in general. By enabling natural resources to replenish, using this package production process guarantees the preservation of renewable elements for future generations.

The production of traditional packaging involves the burning of fossil fuels. Fossil fuel is a non-renewable resource that takes millions of years to form underground before it is ready for extraction. It is also bad for the environment The green movement for producers of environmentally friendly packaging doesn't end with the materials chosen. Businesses that transition to environmentally friendly packaging make every effort to employ renewable energy sources, such solar and wind power, which is encouraging for sustainability programs and the environment. Food goods packaged with sustainable materials have a longer shelf life. For example, fruits like bananas can have a 30-day shelf life when stored in low-density perforated polyethylene packaging. Using eco-friendly products also adds value for customers and cuts landfill waste by 20%.

Sustainable Packaging Trends

According to Aishwariya & Meenambika (2021)

Popular brands such as the iPhone 6s and 7 are advertised as using 85% less plastic, and the Imac Pro is packaged with 78% less plastic and 85% recyclable material. With a redesign of its bottle in 2009, Coca-Cola used 30% plastic that was sourced from nature. These days, the market is flooded with plant-based, mushroom-based, starch (potato) based packaging materials; edible seaweed cups; compostable bags and inks; water-resistant and compostable paper bottles (L'Oreal); and tabs for closing that do not require resins. Nine billion pounds of ink are produced annually using renewable resources. Although there are alternatives like water and soy-based inks, they still require carbon, thus they are not environmentally friendly. Eno-enclose is a sustainable brand that uses recycled paper, compostable wrapping, and algae cells to generate ink.

In line with government plans, e-commerce giants, Flipkart and Amazon are implementing biodegradable materials. Fighting non-recyclable products and educating customers are challenges. Unilever, one of the FMCG companies that has pledged to lowering the amount of virgin plastic used in its packaging by more than 100,000 tons by 2025, is among those that have anticipated this requirement. Dove has switched to 100% recycled plastic packaging as of right now, demonstrating their commitment to environmentally friendly personal care products. Or Kellogg's, which is committed to the circular economy and has set a goal to achieve by the end of 2025: that all of its packaging be recyclable, compostable, or reusable.

Bacardi is another company to mention and has introduced the 100% biodegradable liquor bottle, which replaces the 80 million plastic bottles (or 3,000 tons of plastic) that Bacardi presently manufactures annually across all of its brands. But some firms have chosen more creative packaging over the "recyclable" and "biodegradable" trends. In this instance, Coca-Cola has introduced its first paper bottle, a fresh and revolutionary soft drink prototype. There is a thin layer of 100% recycled plastic on this first prototype. This packaging's minimal weight would be a big benefit, lowering transportation expenses and CO^2 emissions. On World Environment Day, major consumer goods businesses, such as ITC, Dabur, Coca-Cola, and DS Group, unveiled new sustainable milestones and objectives. The corporations have established goals such as achieving carbon neutrality, increasing investments in environmentally friendly packaging, decreasing plastic usage in packaging, and utilizing renewable energy sources.

Dabur India, a domestic manufacturer of ayurvedic and FMCG goods, declared in FY23 that it will be a plastic waste positive by gathering, processing, and recycling more plastic waste than it sold in its product packaging. ITC increased the range of sustainable packaging options it offers as a substitute for plastic and unveiled a number of initiatives to cut back on the use of plastic in a variety of goods and industries, including food, hotels, and packaging.After gathering, processing, and recycling 35,000 MT of post-consumer plastic waste from all over India in 2022–2023, Dabur India announced its decision to become a "Plastic Waste Positive" company.

Major beverage company Coca-Cola India will be introducing new bottles in Andhra Pradesh that are entirely composed of recycled PET plastic (rPET). The beverage major stated that recycled PET of food grade is used to make rPET bottles. By 2030, it wants to have at least 50% of its packaging made of recycled materials.

On World Environment Day 2023, ITC reiterated its resolve to use its multifaceted programs to address the problem of managing plastic waste. The business has increased the amount of money it invests in creating creative, environmentally friendly packaging options that can replace single-use plastics. ITC managed 60,000 MT of plastic waste responsibly in Fy23 – more than the quantity of packaging used – maintaining its Plastic Neutrality certification for the second year in a row. Paperboards, paper, and packaging made by ITC Companies are leading the way in innovative packaging solutions that eliminate the need for single-use plastics. It had also included its own line of personal care goods in its ecological packaging programs.

Recyclable solutions are gradually being used by some of ITC's personal care brands. For example, Fiama Shower Gel bottles now contain fifty percent recycled material from the last customer, and the PET layer of Savlon Glycerin Soap Wrapper contains seventy percent recycled plastic from the previous consumer. The firm has switched to using only recyclable containers made of paper for Engage Perfume and Cologne bottles. Glass water bottles are more environmentally friendly than plastic ones, thanks to ITC Hotels Business.

Several global companies have committed to adopting sustainable packaging practices. Johnson & Johnson aims to have 100% recyclable, reusable, or compostable plastic packaging for its consumer health brands by 2025, along with certified recycled paper packaging. Tetra Pak currently recycles 54% of its cartons and plans to increase this to 100% by partnering with recycling technologies in India. Coca-Cola is recycling 75% of its bottles and cans in developed markets and encourages customers to recycle. Flipkart has begun using paper-based packaging and aims to eliminate single-use plastics by March 2021.

Nestlé has invested $30 million in reusable and recyclable packaging, introduced a refillable pet food system in Chile, and aims to reduce packaging by 140,000 tons by the end of 2020. McDonald's will source all guest packaging from certified or renewable sources by 2025. PepsiCo and Procter & Gamble are similarly focused on biodegradable and recyclable packaging, with Pepsi aiming for 100% sustainable packaging by 2025 and P&G already using 90% recyclable packaging. Unilever seeks to halve its product waste and make all its plastic packaging recyclable or reusable by 2025, while Danone is innovating its packaging to be fully recyclable.

Literature Review

Aguilar-Rodríguez (2020) investigated how sustainable packaging affects consumer behavior in Mexico and discovered that attitudes and ideas about the environment have an impact on consumers' willingness to pay for sustainable packaging. A typology of design techniques for sustainable packaging was put forth by Anagnostopoulos (2017). These strategies included product recyclability enhancement, use of renewable materials, and packaging size reduction. De-Almeida, Veiga (2018) looked into how consumer behavior was impacted by packaging and labeling in the setting of fast-moving consumer goods. According to the research, consumers' purchasing decisions are positively impacted by packaging and labeling features that are visually appealing. Customers that have pro-environmental views are more likely to engage in environmentally sustainable actions, according to research by D'Souza et al (2007) that examined the association between environmentally sustainable attitudes and behaviors across three nations. In her systematic research, Fernández-Muñoz (2019) discovered that eco-labels have a favorable effect on customers' attitudes toward the environment and their willingness to pay for environmentally friendly items.In the context of FMCG items, Kaur, Kaur (2019) investigated the effect of sustainable packaging on consumer purchasing behavior. The findings imply that consumers' decisions to buy are positively impacted by sustainable packaging. Kim and Lee (2018) looked at how eco-friendly package design affected brand attitude and buy intention. They discovered that eco-friendly packaging had a favorable impact on customers' opinions of the brand and their desire to make a purchase.

Mehta and Dubey (2019) examined how consumers behaved when it came to eco-friendly FMCG goods. The results show that environmentally friendly items have a favorable effect on customer purchasing decisions. In his 2017 study, Michalak looked at how the FMCG industry's use of sustainable packaging affects brand image development. According to consumer studies, 85% of consumers want to purchase goods in reusable packaging, yet fewer than 5% of consumers actually use reuse systems (Poole, 2019). The concept known as "the intention-behavior gap" has been extensively researched in various fields (for example, health behaviors; Sheeran and Webb, 2016 provides an overview). Although consumers play a crucial part in the success of reuse models, relatively little study has looked at the variables that could affect whether or not consumers engage with reuse systems or use reusable packaging. An exception to this rule is a study by Ertz et al. (2017), which discovered that customers' intentions to use reusable packaging were predicted by contextual factors like regulation and pricing as well as psychological ones like attitudes and subjective standards. Nevertheless, to the best of our knowledge, no study has looked at how features of the product or packaging can affect a customer's desire to reuse.

When asked what they would be willing to do with different items' packaging, the most popular response was recycling (53%), which was followed by throwing the packing in the trash (34%), and then reusing the packaging (13%). These results lend credence to the notion that recycling has established itself as the standard (Kunamaneni et al., 2019). The most often chosen options (6% each for refilling and repurposing, against 1% for returning the packing) when participants were willing to reuse the packaging, they were refilling and reusing it. The products were categorized based on

what participants said they would be willing to do with the product's packaging in order to investigate the kinds of packaging that people were willing to reuse. This displayed 13 items. What elements affect people's willingness to reuse? Characteristics of the package. In particular, it was discovered that glass packaging (received by 37% of respondents) was more likely to be reused than packaging composed of films, flexible plastic, or foil (<.05).

Orzan et al. (2018) used a sample of 200 high-earners between the ages of 18 and 64 to analyze the effects of sustainable packaging in Romania. Many factors have been used to get access to sustainable packaging, including the frequency of purchases of goods in sustainable packaging, the reasons behind these choices, understanding of green packaging, and willingness to pay extra. Paper, glass, and cardboard are materials that Romanians choose because they think they can be readily recycled or reused, according to research. Based on survey data, the authors argue that, despite concerns about sustainable packaging, it is now unable to address sustainable purchasing patterns.

Drs. D. Annie Jennifer and Geetha did "a study on consumer behavior" in regard to buying environmentally friendly goods in Coimbatore in 2014. The objective was to comprehend customer behavior while buying environmentally friendly goods, the variables influencing that behavior, and the issues it raises. They looked into how to create a systematic survey questionnaire. They chose a sample size of one hundred eco-conscious customers from the city of Coimbatore for their research. The report included recommendations from the writers in addition to the results. The study's result was that eco-friendly items and consumer behavior are positively correlated. In Coimbatore, green consumerism appears to be increasing.

Van Birgelen, Semeijn and Keicher (2009) conducted a study on beverages and discovered that environmental consciousness and an eco-friendly mind-sets are associated to beverage disposal decisions and eco-friendly purchase. Furthermore, a positive relationship is observed with sustainable packaging against purchase decision. Likewise, Spence and Velasco, (2018), state different consumer purchasing behaviour is influenced by sustainable packaging. According to Petljak et al. (2019) when buying items with green packaging, consumers take the environment's influence and their health into account. The authors have observed a positive relationship between the consumers' concern on packaging with sustainable packaging. Furthermore, a positive relationship was observed against the concern on environment impact. Per Drs. Vicky Lofthouse and Tracy Bhamra, Department of Design and Technology, Loughborough University, June 30, 2006, the following are the reasons why refills are actively purchased: Additionally, the WRAP study distinguished three distinct reasons why people purchase refills: – selflessness Ecozone and driven customers Value, cost, innovation, technology, and convenience - imaginative, chic in appearance and feel While the study's results also pointed to cost, convenience, and altruism as motivators for refills, altruism and the desire to be environmentally conscious were qualified to acknowledge that these factors have to be connected to either product quality or cost. The study's findings also revealed a number of other explanations for why consumers actively purchase refills: - Individuals without cars say they like refills since they are lighter and smaller.

According to Jain and Hudnurkar increased environmental knowledge and consumer consideration of the effects of purchases are positively correlated, according to the study. Most people would rather stay in their comfort zones because they don't think their actions would have a substantial impact on the environment. We advise brands to inform their customers about the benefits of sustainable, green products for the environment and the individual ways that consumers can help. This study looks at consumer behaviour toward sustainable packaging, but it doesn't look at workable substitutes for the materials used in packaging today. We think further study should be done to gain a better understanding of the less expensive alternative packaging materials that are on the market. More research could be done to examine the various substitute materials, their price, and their environmental impact.

According to Kacker and Mishra (2022) Consumer awareness is extremely high, as evidenced by the study's finding that 86% of respondents were aware of green packaging. Seventy percent of consumers choose green packaging for fast-moving consumer items, a sign of their environmental sensitivity The environment is the primary motivator for selecting ecofriendly packaging, according to over 87% of respondents. Although it just offers basic information, 53% of consumers were unable

to locate ecofriendly labels on the package. 86% of respondents said that the product's quality is guaranteed by its green packaging, yet 63% of respondents said that buyers are price sensitive. The research validates earlier findings that green packaging affects the environment. Looking at packaging, buyers could tell the difference between green and gray, according to Herbes et al. (2020).For instance, they discovered that consumers most frequently rely on labeling and instances of deceptive labeling. While French consumers seemed less trusting of published information and more trusting of the look and feel, particularly the material of the package, German and American consumers relied on information on the packaging and named searching for information as one of their preferred ways to decide whether packaging is environmentally friendly. The findings highlight the significance of cultural factors in how consumers pick up perceptual cues. The authors employed a close ended strategy to generate surprising responses and an open-ended method.

Ringler (2012) conducted an experiment centered on sustainable packaging and examined the potential impact of package sustainability on a consumer's decision to buy a product. The study by Ringler (2012) found that although participants valued price, quality, and brand over sustainability, a package's sustainability had an impact on the package's quality or appearance or the retail price of the product (Ringler, 2012). The study conducted in Malaysia revealed a direct correlation between customers' intentions to purchase green-packaged products and their attitudes, perceived behavioural control, environmental concern, and environmental awareness regarding green packaging. This study also demonstrated that, when it comes to purchasing green packaging products, intention and behavior have a strong and direct relationship (Moorthy, 2021). Ischen evaluated the environmental packaging cues' salience and greenness.

According to Sharma and Tirkey (2016) after analysing 150 samples from Delhi. This study in which my sample was 150 consumers residing in Delhi, the findings were that consumers are not concerned about sustainable packaging while buying the product; it's a secondary factor for them. They know the importance but the practical implementation of the same in their life was unseen i.e. they don't consider sustainable package as of great importance while buying any product. Also, they don't know what exactly sustainability is. So, either the government or the manufacturing companies should start some awareness programs that can synthesize consumers about the importance and need of sustainable packaging for them as well as for the future generation.

Research Methodology

The research began with a thorough analysis of 30 papers and articles on this topic. The research is based on qualitative data collected through various articles published in journals. A majority of the data is collected through a literature review.

Study Objectives

1. Do the consumers prefer the sustainable packaging for FMCG products?
2. What are the factors that influence the preference for sustainable packaging in FMCG brands?

Findings

Research indicated that consumers generally favor sustainably packaged FMCG products over non-sustainable alternatives, given equal conditions. However, this preference was strongly influenced by demographic factors such as age, income, and education. Older consumers, those with higher incomes, and those with more education were more likely to prefer sustainable packaging. Additionally, products with sustainable packaging often received higher sustainability ratings, suggesting a positive correlation between sustainable packaging and the perceived sustainability of FMCG products overall. This highlighted the growing importance of eco-friendly packaging in consumer decision-making, particularly among certain demographic groups.

Discussion

The sustainable packaging is the need of hour. In last two decades there is growing concern about the environment. The plastic and other wastes have proven very hazardous to the planet. There are lots of issues with the dumping and eradication of the plastic wastes. So taking these issue in view it is very essential to take some steps towards eliminating or either minimizing the problems. Therefore, it is essential to start practicing the sustainable packaging methods. Since the FMCG products are used in every household this line of action is the most important one. People are also aware about the environment concerns but they cannot undergo the action unless the market provides them the opportunity.

So the brands should make the sustainable packaging as their USP, provide awareness so that consumers will practice it.

Conclusion

There is lack of awareness amongst the consumers regarding sustainable packaging in India. The consumers are concern about the environment and willing to go for sustainable packaging but the FMCG brands do not provide sustainable packaging for all the range of products. The cosmetics, bakeries and confectioneries and groceries to certain extent only could adopt the sustainable packaging. The consumers have preferred the sustainable packaging methods for the brands that have introduced them.

References

Angelovska, J., Sotiroska, S.B., Angelovska, N., 2012. The impact of environmental concern and awareness on consumer behaviour. J. Int. Environ. Appl. Sci. 7, 406–416.

D'Souza, C., Taghian, M., SullivanMort, G., & Gilmore, A. (2015). An evaluation of the role of green marketing and a firm"s internal practices for environmental sustainability. Journal of strategic marketing, 23(7), 600-615.

Ertz, M., Huang, R., Jo, M.S., Karakas, F., Sarigöllü, E., 2017. From single-use to multiuse: Study of consumers' behavior toward consumption of reusable containers. J. Environ. Manage. 193, 334–344. doi:10.1016/j.jenvman.2017.01.060.

Geetha, D., and A. Jenifer. "A study on consumer behaviour towards purchase of eco friendly products in Coimbatore." Abhinav International Monthly Refereed Journal of Research in Management and Technology 3.3 (2014): 1-8.

Jain, Priyanshi, and ManojHudnurkar. "Sustainable packaging in the FMCG industry." Cleaner and Responsible Consumption 7 (2022): 100075.

Kacker & Mishra (2022) Consumer perception towards green packaging for environmental sustainability: a study on fmcg sector international Journal of Advanced Research in Commerce, Management & Social Science (IJARCMSS) 44 ISSN : 2581-7930, Impact Factor : 6.809 , Volume 05, No. 03(II), July - September, 2022, pp 44-50.

Kaur, K., & Kaur, K. (2019). Impact of Sustainable Packaging on Consumer Buying Behaviour. Journal of Xidian University, 13(6), 180-187.

Mehta, R., & Dubey, R. (2019). Analysis of Consumer Behavior towards Eco-Friendly FMCG Products. International Journal of Management, Technology, and Social Sciences, 4(1), 112-123.

Moorthy, K., Kamarudin, A. A., Xin, L., Hui, L. M., Way, L. T., Fang, P. S., & Carmen, W. (2021). Green packaging purchase behaviour: a study on Malaysian consumers. Environment, Development and Sustainability, 23(10), 15391-15412. https://doi.org/10.1007/s10668-021-01302-6

Orzan, G., Cruceru, A. F., Bălăceanu, C. T., &Chivu, R. G. (2018, May 29). Consumers' Behavior Concerning Sustainable Packaging: An Exploratory Study on Romanian Consumers. Sustainability, 10. doi:10.3390/su10061787.

Petljak, K., Naletina, D. and Bologrevic, K. (2019) Considering ecologically sustainable packaging during decision-making while buying food products. Economics of Agriculture, No. 1, 2019, (pp. 107-126).

Poole, J., 2019. Refill and reuse: Unilever launches Cifecorefill, removing 1.5 million plastic spray bottles from shelves Packaging. Insights. URLhttps://www.packaginginsights.com/news/refill-and-reuse-unileverlaunches-cif-ecorefill-removing-15-million-plastic-spray-bottles-from-shelves. html (accessed 10.2.20)

Ringler, R. (2012). Effect of Sustainability Package Advertising on Consumer Purchases

S. J. Eilert (2005), New packaging technologies for the 21st century, Meat Science, Volume 71, Issue 1,Pages 122-127,ISSN0309-1740,https://doi.org/10.1016/j.meatsci.2005. 04.003.

Sheeran, P., Webb, T.L., 2016. The Intention–Behavior Gap. Soc. Personal. Psychol. Compass 10, 503–518. doi:10.1111/spc3.12265.

Suneel Kunamaneni, Sukky Jassi, Dong Hoang, Promoting reuse behaviour: Challenges and strategies for repeat purchase, low-involvement products, Sustainable Production and Consumption, Volume 20,2019,Pages 253-272,ISSN 2352-5509,https://doi.org/10.1016/j.spc.2019.07.001.(https://www.sciencedirect.com/science/article/pii/S2352550919301083)http://refhub.elsevier.com/S2352-5509(21)00095-6/optE1xc31EfPX

Van Birgelen, M.; Semeijn, J.; Keicher, M. Packaging

and pro-environmental consumption behavior: Investigating purchase and disposal decisions for beverages. Environ. Behav. 2 http://refhub.elsevier.com/S2666-7843(22)00029-8/

WRAP, 2022. The UK Plastic Pact's Annual Report 2021-2022. Available at www.wrap.org.uk/sites/default/files/2022-11/The%20UK%20Plastics%20Pact%20Annual%20Report% 202021-22.pdf (Accessed: 8 December 2022)

Aguilar-Rodríguez, A. E., Torres-Ruiz, F. J., & Sánchez-García, J. (2020). Sustainable packaging and its impact on consumer behavior: An empirical analysis in Mexico. Journal of Cleaner Production, 262, 121367

Michalak, A. (2017). Sustainable packaging as a factor of building brand image. Journal of International Studies, 10(2), 37-48

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Exploring Stock Market Relations: India and Australia in the Post-Recession Era

Abstract

This study aims to examine the relations between the stock markets in Australia and Indiaafter the recession of 2008. To discover the presence of relationship and the extent of such relationship, Cointegration analysis has been applied on 15 years' data on Indian and the Australian stock market indices as a proxy for their respective markets using Johansen test of Cointegration. The study's findings indicated a long-term, unidirectional causal relationship between Australia's and India's stock market which runs from Australian markets to the Indian stock markets. In the short term, there no causal connection between the Indian and Australian stock markets has been found. Since there has been no indication that the two stock markets move in the same direction, investors will probably gain in the short term from diversifying their portfolios between them, according to the study, which has given insightful information.

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Keywords: *Stock market index, post-recession, Cointegration.*

Introduction

With the advent of Liberalization and Globalization of Indian economy, the linkages with other economies started blooming. The growth of information technology further reinforced these ties and cleared the path for more trade and foreign capital entry into the nation. In this way, the world became a global community and every country thus remained unaffected by happening in any part of the world. The recession of 2008 which seeded in US entangled in its roots every country in one way or the other. This paper aim to analyse the integration of Indian stock market (a developing market) and Australian Stock Market (a developed market) after the recession of 2008.

To study the integration between the two economies, the relationship between the stock markets can be studied as a proxy as stock markets serve as barometer for the economy. The state of domestic economy is reflected in stock market inflows and outflows along with the degree of faith that domestic and foreign investors have in an economy. This study by exploring co-movement, if any, between the Indian and Australian stock markets, has brought clarity to the aspect if it would be beneficial for the investor to diversify his portfolio between the two markets.

The strategy of diversification is a risk minimizing strategy. Since stock indices from various nations are impacted by various factors and may move in varying directions. Therefore, an understanding of the potential benefits of diversification could be gained by analysing the types of dependencies between an emerging and developed market. It might also be a sign of how susceptible the national stock market is to events in foreign markets.

The significance of diversification decreases as cointegration increases. Additionally, according to Markowitz portfolio theory, risk is reduced when there is little correlation between the variables being examined. A lot of studies on Cointegration among the stock markets have been made. Many studies on cointegration of developing markets and larger established markets reported diversification benefits while other studies reported no benefit in long-termdiversification. But all studies that have been made have reported cointegration as a good parameter to examine co-integrationwith Johansen's techniques the most often used instrument. (Maggiora and Spring, 2009). The present study empirically analyzed the cointegration that exist amongst the Indian & the Australian Stock Market over 15years' time period. The results of the study provided an insight on the possibility of portfolio diversification between the two

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markets. The primary goal of the research is to use the Johansen Test of Cointegration to examine the short- and long-term relationships between the Australian and Indian stock markets.

Literature Review

Wong, Agarwal, and Du Jun (2004) used Granger causality and pairwise, multiple, and fractional cointegrations to empirically study the long- and short-term relationships between the Indian stock market and the stock markets of the US, UK, and Japan. The results showed unidirectional short-run causality from the US, UK, and Japanese stock markets to the Indian stock markets.

Chen, Lobo &Wong (2006), using FIVECM, or the Fractionally Integrated Vector Error Correction Model, investigated the bilateral linkages between the stock markets of China, India, and the US. They discovered that all three pairings of stock markets have fractional cointegration. While there is an interaction relationship between the Indian and Chinese stock markets that reports no benefits to diversification, the US stock market has a unidirectional impact on the other two markets.

M. V. Subha and S. Thirupparkadal Nambi (2010) used the Engle Granger test to investigate cointegration between the NSE and BSE with the NYSE, S&P500, and the NASDAQ. The study covered eight years of data, from January 1, 2000, to December 31, 2008, and found no evidence of reliance between Indian stock exchanges and the NASDAQ and the S&P 500.

Prashant Joshi (2013) by using the multivariate co-integration & VECM model developed by Johansen and Juselius, reported co-integration among the stock markets of the USA, Brazil, Mexico, China, and India between January 1996 and July 2007. They also found that, in comparison to other stock markets they studied, the Indian stock market reacts more quickly.

P. Srikanth & K. Aparna (2012) examined the degree of integration between the BSE index and the NYSE, NASDAQ, S&P500, Hang Seng, Nikkei225, SSE Composite index, and FTSE100. They stated that there is a significant level of integration between the local and global financial markets.

Yusuf Y. C. (2022) used the Johansen cointegration test along with other tests such as long-run structural modelling, vector-error-correlation-model, and variance-decomposition over a thirty-two-year period from 1988 to 2019 to find significant long-run and short-run economic relationships of the East Africa Community. He stated that whereas Kenya, Burundi, and Rwanda demonstrated notable short-term positive economic relationships, Tanzania and Kenya had considerable negative economic relationships.

Research Methodology

Cointegration as a statistical tool explores whether two non-stationary series move in the same direction and do not deviate from their path in long run 'The studies examined agree that out of the various techniques to explore Cointegration, Johansen's method is a good parameter'. (Della Maggiora and Skerman, Spring 2009).When the linear combination of two variables becomes stationary, it indicates cointegration and suggests that there is a long-term relationship between them. A lack of cointegration indicates the absence of this kind of relationship.

Data

To proxy Australian& Indian stock market, ASX200 index & S&P CNX Nifty have been used respectively. The closing price information for the 15-year research period, which runs from January 1, 2009, to December 31, 2023, has been obtained from YahooFinance.com. There hasn't been a currency conversion for the data values. According to Alexander (2001), cointegration analysis between markets ought to be finished in the native currency of each index. Any potential exchange rate volatility will be eliminated by not converting to a common currency.

ASX 200: The ASX 200 index offers a precise benchmark for the stock market overall and accounts for 72% of the market capitalisation of the Australian stock market. The top 200 ASX listed businesses, as determined by float-adjusted market capitalisation, make up this leading index.

S&P CNX Nifty: S&P CNX Nifty or commonly known as Nifty 50 comprise of 50 most liquid stocks with highest trading volume and 63% of the Free Float Market Capitalization. It represents 22 sectors of the economy &can be treated as a true replica of the Indian stock market.

As non-trading days are different in Indian & Australia, the sampled data has been treated to ensure consistency. In case of a missing trading day, previous day's closing

price has been inserted as closing price for that day's data to make sure all the dates line up and to show that there were no trades that day.

Analytical Tools

A methodical process must be adhered to in order to analyse the cointegration using the following tools:

1. Augmented Dickey Fuller Test to verify data stationarity
2. The cointegration test by Johansen
3. Trace test& Max Eigenvalue test
4. Vector Error Correction Model
5. Granger Causality Test

The Johansen Cointegration process is a maximum likelihood technique that counts the cointegrating vectors in a restricted vector auto regression (VAR), also referred to as a vector error correction model (VECM). The following is Johansen's estimating model:

$$\Delta X_t = \mu + \sum_{i=1}^{p} \Gamma_i \Delta X_{t-i} + \alpha\beta' X_{t-i} + \varepsilon_t$$

Where :

X_t = (nx1) vector of all the non stationary indices in the study

r_i = (nxn) matrix of coefficients

a = (nxr) matrix of error correction coefficients where r is the number of cointegrating relationships in the variables so that 0<r<n. It measures the speed at which the variables adjust to their equilibrium.

β = (nxr) matrix of r cointegrating vectors, so that 0<r<n. this is what represents the long-run cointegrating relationship between variables.

Results

First, stationarity in the closing price series of both indexes has been examined. After first differencing, both the series which were non stationary were found to become stationary. As a result, the data ensured a necessary requirement for using Johansen's test of cointegration. Table 1 contains the test results that were reported.

Table 1: Result of ADF test

	Nifty	ASX200
Level	-0.325032 (0.8972)	-1.344513 (0.1551)
On first differencing	-23.22522** (0.0001)	-45.18021** (0.0000)

(the values in the parenthesis are p values) *** indicates significance at 5% level*

Post checking the stationarity of data, number of cointegrating vectors need to be determined for which Trace Test and Eigen Value Test have been used. For the Trace Test, the alternative is (H1: r > 0) and the null hypothesis is (H0: r = 0). Also, the alternative of r+1 cointegrating vectors has been tested against the null hypothesis that the number of cointegrating vectors is equal to r using the Maximum Eigen Value Test(Brooks 2008).

The result of the two tests have been reported in table 2 below:

Table 2: Result for Trace test & Max Eigen Value Test:

Trace test				Max-Eigenvalue test			
No. of Cointegrating Equations Hypothesised	**Trace test statistic**	**P-value**	**Sig.level 5%**	**No. of Cointegrating Equations Hypothesised**	**Max-Eigenvalue test Statistic**	**P-value**	**Sig.level 5%**
None	27.02920	0.00192	Yes	None	06.88511	0.0088	Yes
At most 1	0.144094	0.9042	No	At most 1	0.344094	0.8142	No

One cointegrating equation has been reported at the 0.05 level, according to the Trace and Max-Eigenvalue tests which meantthat the indices share a common stochastic trend and grow proportionallly. The presence of Cointegration is an indication that a relationship exists between the Indian & Australian stock market but it does not report the direction of that relationship.

For testing the direction of causality, VECM has been applied. For finding the appropriate lag length various lag length criterion have been checked. Out of the five methods reported below, four methods indicate the appropriate lag length to4 and one methods indicate it to be 1. We have chosen 4 as the lag length to test the causality.

Table 3: Results of Various Lag Length Criterion

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-19791.35	NA	4.05e+11	34.40169	34.40769	34.40390
1	-10574.74	18407.40	17976584	44.38033	44.39833	44.38697*
2	-10565.48	14.83158	17909533	44.37660	44.40660	44.38766
3	-10564.48	8.83758	17909438	44.37760	44.40653	44.38796
4	-10563.36	3.819634*	17950149*	44.37886*	44.44086*	44.39435
5	-10551.43	5.963110	17873416	44.37458	44.44058	44.39894
6	-10549.15	4.509440	17907066	44.37646	44.45446	44.40544
7	-10543.51	11.19513	17875091	44.37467	44.46467	44.40786
8	-10539.44	8.057878	17873803	44.37460	44.47660	44.41441

(indicates appropriate lag length)*

The VECM equations have been given below. Equation 1 shows the VECM of the Australian stock market on Indian stock market. The equation 2 shows the VECM of the Indian stock market on Australian stock market.

Table 4: Results of VECM

Dependent Variable	Equation No.	Equation
ASX200	Equation 1	D(ASX200) = C(1)*(ASX200(-1) - 0.488136235705*NIFTY(-1) - 2115.15354475) + C(2)*D(ASX200(-1)) + C(3)*D(ASX200(-2)) + C(4)*D(ASX200(-3)) + C(5)*D(ASX200(-4)) + C(6)*D(NIFTY(-1)) + C(7)*D(NIFTY(-2)) + C(8)*D(NIFTY(-3)) + C(9)*D(NIFTY(-4)) + C(10)
Nifty	Equation 2	D(NIFTY) = C(1)*(NIFTY(-1) - 2.04860841473*ASX200(-1) + 4333.12135023) + C(2)*D(NIFTY(-1)) + C(3)*D(NIFTY(-2)) + C(4)*D(NIFTY(-3)) + C(5)*D(NIFTY(-4)) + C(6)*D(ASX200(-1)) + C(7)*D(ASX200(-2)) + C(8)*D(ASX200(-3)) + C(9)*D(ASX200(-4)) + C(10)

The VEC Mestimation output has been given below in table 5.

In the column (ii) in table 5, ASX200 has been taken as the dependent variable and Nifty has been taken as dependent variable in column (iv). P-values have been reported along with the estimated values in column (iii) and (v).

Table 4: Results of VECM

(i)	(ii)	(iii)	(iv)	(v)
	Dependent variable ASX200 Index		***Dependent variable Nifty Index***	
Coefficients	**Estimates**	***P. value***	**Estimates**	***P. value***
C(1)	0.009369	0.6121	-0.001535	0.0000
C(2)	-0.028667	0.2178	0.073351	0.0015
C(3)	-3.20E-06	0.9999	-0.006623	0.7780
C(4)	-0.073362	0.0013	-0.021996	0.3379
C(5)	0.023326	0.2918	-0.032606	0.1638
C(6)	0.035239	0.0326	-0.021317	0.3933
C(7)	-0.002386	0.8912	0.061350	0.0395
C(8)	0.031393	0.0173	-0.022333	0.3738
C(9)	-0.015362	0.3765	-0.033988	0.1590
C(10)	-0.656393	0.6136	1.975938	0.2609

In table 5 above, Column (ii) of table 3 show the result of the VECM of Australian stock market on India stock market. C(1) is the coefficient of the one period lagged residual from the cointegrating equation. It is the coefficient of speed towards the long run equilibrium for which the reported value has been positive and insignificant at 5% level which meant Indian stock market does not affect Australian stock market in long run.

Likewise, a long-term causal relationship between the Australian and Indian markets has been demonstrated. With Nifty serving as the dependent variable, the ECT of the VECM model has been -0.001535, a negative and significant value. Thus, we concluded that there is a long-term causal relationship between the Indian stock market and the Australian stock market. Also, the Indian market adjusts to the disequilibrium at a rate of 0.15% according to the ECT's coefficient of -0.001535.

As regards the short sun causality, the significance of the coefficients of the independent variable taking all lags together has been tested using Wald statistic. To test the significance of coefficients the chi square value of Wald statistic has been used testing the null that all the coefficients taken together at all the lags are zero.

H_0: c(6)=c(7)=c(8)= c(9)=c(10)=0

H_1: c(6)=c(7)=c(8)= c(9)=c(10) $\neq$ 0

The result of the Wald test has been reported in table 6 below:

Table 6: Result of Wald Test:

Dependent variable	Test value	P value	Result
ASX	11.39301	0.0833	**Null not rejected**
Nifty	9.080330	0.1523	**Null not rejected**

Discussion and Results

The present study explores causal relationship amongst Indian and Australian Sock markets. Most of the studies done previously explore the long- and short-term relationships between the Indian stock market and the stock markets of the US, UK, and China. None of the study explores the relationship between Indian & Australian markets. Most of the previous studies reported that Indian markets are integrated with the markets of US, Japan and other developed countries either unidirectionally or bidirectionally and the Indian Markets respond quickly towards equilibrium. However,

M. V. Subha and S. Thirupparkadal Nambi found no evidence of reliance between Indian stock exchanges and the NASDAQ and the S&P 500. However, the results may have varied as above studies pertain to different time periods.

The present study uses approximately fifteen years closing price data for Nifty50 and ASX200 stock indices representing the Indian &Australian stock markets. Unidirectional long run causal relationship running from Australian stock market to Indian stock markets has been reported for the data under consideration but in short run no such causality has been found. Thus, the study provides a useful insight to the investors that they can earn return on their portfolio by diversifying it between the two markets in short run.

References

Chen, Lobo & Wong(2006), "Links between Indian, US & Chinese stock markets", National university of Singapore, department of economics WP no. 0602. , Jan. 2006.

http://nt2.fas.nus.edu.sg/ecs/pub/wp/wp0602.pdf

Golaka C. Nath & G. P. Samanta (2003), "Dynamic Relation Between Exchange Rate and Stock Prices – A Case for India", NSE news, National Stock Exchange of India limited (NSEIL) PP. 15-18.

Lenka S. K., & Sharma R. (2020). Re-examining the effect of financial development on economic growth in India: Does the measurement of financial development matter? Journal of Asia-Pacific Business, 21(2), 1–20.

M. V. Subha & S. Thirupparkadal Nambi (2010), "A study on cointegration between indian and american stock markets" Journal of Contemporary Research in Management" Vol. 5(1),Jan - Mar, 2010, pp 105-112.

Naliniprava Tripathy and Shekhar Mishra (2021), " The Dynamics of Cointegration Between Economic Growth and Financial Development in Emerging Asian Economy: Evidence from India", Vision: The Joournal of Business Perspective, Vol 27(4), https://doi.org/10.1177/09722629211011811.

Niti Goyal, Anil K. Mittal, " A Study on Cointegration between Indian & Chinese Stock Markets", Finance India, Vol.32(3) , September 2018, ISSN 0970-3772, pp. 805-814.

P. Srikanth & K. Aparna (2012), "Global Stock Market Integration - A Study Of Select World Major Stock Markets", International Refereed Research Journal ,Vol 3(1), pp. 203-211.

Prashant Joshi (2013), "Market Integration and Efficiency of Indian Stock Markets: A Study of NSE", Retrieved on 03.03.2015 from http://nseindia.com/content/research/ResearchPaper_198.pdf

Sr Pramati, R Gupta, E roca(2012), "International equity markets Integration: Evidence from Global Financial Crisis & Structural Breaks", retrieved frim www.cb.cityyu.edu.hk *on 9th Feb 2016.*

Wong, W.K. and Agarwal, A. and Du Jun, 2003, 'Financial Integration for Indian Stock Market: A Fractional Co-integration Approach', Finance India, Vol.XVIII, No.3, December, pp.1581-1603. Damodar Gujarathi, "Basic Econometrics", Tata McGraw Hill Edition, New Delhi, 2000, pp.789- 792.

Yana Petrova (2020), On cointegration between the insurance market and economic activity," Emperical Economics, vol (59), pp 1127-1138.

Yussuf, Y.C. (2022), "Cointegration test for the long-run economic relationships of East Africa community: evidence from a meta-analysis", Asian Journal of Economics & Banking , Vol. 6 No. 3, pp. 314-336. https://doi.org/10.1108/AJEB-03-2021-0032.

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Financial Decisions : A Gendered Perspective

Abstract

Gender plays a significant role in shaping financial decision-making, influencing their approach towards saving, investing, and managing risks. This study explores the relationship between gender and financial decision-making. While conventional stereotypes portray men as risk-takers and women as more cautious in financial matters, this research aims to uncover a more nuanced reality. By carefully analyzing data, the study identified patterns in financial behavior, looking beyond gender stereotypes to understand the underlying factors that shape these decisions. The elements considered in the study included risk tolerance, information-gathering strategies, emotional influences, and the impact of social roles on financial choices. The findings highlight the diversity of approaches within each gender, challenging the one-size-fits-all view often associated with financial behavior. This study offers insights into the complex connections between gender and financial decision-making, encouraging a more informed understanding of financial behavior across genders.

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Keywords: *Gender, Risk-takers, Financial Choices, Financial Behavior, Investing.*

Introduction

Men and women have different perspectives on money men take greater risks, while women tend to play it safe. Generally males take greater financial risks than women (Powell, 1997). Despite the historical stereotype that women are less interested in finance, their increasing affluence and financial independence raise the question of whether gender-based differences in financial decision-making persist. Given their increasing knowledge and active participation in the financial world, it is important to investigate modern women's unique investment strategies, challenging the traditional assumptions. (Kaur, 2018)

Women demonstrate an inclination toward lower-risk investment portfolios, while finding commonalities between men and women in terms of financial choice confidence. This is revealed by applying a positivistic and logical methodology with a focus on risk aversion and overconfidence in financial judgments (Jonas Berggren, May 2010). In order to develop novel approaches to financial education for women, this study examined female investment behavior, specifically how learning preferences, socioeconomic characteristics, and personal and environmental factors impact women's investment decisions and portfolio diversification. (Loibl, 2008)

This study explored into the connection between an investor's occupation and the investments they make, as well as the factors that affect their selections. Financial service providers can utilize this information to target particular investor categories with relevant products and services (Sarang Shankar Bhola, 2012). According to a survey of Indian stock market investors, elements including financial statements, economic indicators, and "delightful" insider information influence their decisions. Policymakers and businesses can benefit from an understanding of these sector-specific factors.(Sagar Patil, December 2021)

Risk tolerance, gender, and age all influence investor behavior. According to this study, investing decisions are greatly influenced by these demographics, indicating that age and gender-based segmentation is insufficient (Dash, 2010). Age and gender have a significant influence on the risk and decision-making behavior of investors; demographic data alone is insufficient to fully comprehend their financial planning needs. This study examines how both variables affect

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investment decisions, emphasizing how crucial it is to take both into account for efficient investor segmentation and product creation (Manish Sharma, 2019)

According to a Chennai study, investor perceptions of factors influencing investment decisions vary according on the investor's gender, age, and other demographics. This suggests that tailored financial solutions are necessary to better serve a variety of market segments (S.Hemalatha). This study examined the variables that people in the Vizianagaram district consider when making investment decisions. The results show that elements such as currency strength, legal considerations, firm legacy, and new products have a big influence. The results offer significant perspectives to help firms and policymakers make well-informed decisions. (Dr. N.S.V.N Raju, 2020)

Literature Review

Despite accounting for financial education and experience, recent research on college-aged students participating in a classroom investing assignment shows that women are more risk averse than men when making investment decisions. (Fish, 2012)This study examines the relationship between individual financial management and financial literacy in India across a range of professional categories. The results show that there are significant variations between business class and self-employed individuals in terms of financial understanding and practical application. (Neha Ramnani Bhargaval, 2017)

This essay offers a theoretical framework for choosing a career that is based on the rules of economic decision-making. It suggests that people's utility functions, access to resources, and expected results all play a role in their decision about what to do for a living. Making decisions entails maximizing net gain, with a focus on the origins of utility and the substitutability of occupational utility functions.(Donald R. Kaldor, 1969)

This study investigated the nomenclature of the Family Influence Scale in the US and India, looking at its relationships to work values, calling, family responsibility, work volition, and occupational engagement. Construct validity and consistent correlations between familial factors and the stated dimensions were proven in surveys administered via Amazon Mechanical Turk to 136 individuals in the United States and 377 participants in India. Results point to the Family Influence Scale's relevance and cross-cultural applicability in understanding the dynamics of career decision-making. (Nadya A. Fouad Nadya, 2015)

Financial literacy, encompassing knowledge, behavior, and attitude, is crucial for lifelong financial security. Research highlights the impact of low financial literacy on household and macroeconomic crises. Traditional economic assumptions clash with observed gaps, aligning more with behavioral economics. Demographic factors, like gender, have limited influence on financial literacy gaps, suggesting the need for further research. This study explores the impact of occupation and household income on financial knowledge in the National Capital Region of India. (Ms. Poonam Rani, 2019)

This article examines how Indian women's roles in the home and workplace are changing and highlights their growing involvement in the economy. Although women are generally thought of as risk-averse when it comes to investing, the study reveals that spouses share responsibility for a variety of financial items. Whereas male spouses are heavily involved in real estate and stock shares, women have more control over things like mutual funds and bank accounts. (Kota, 2019)

The disparities in the Investment Decision Making (IDM) process between male and female investors are investigated in this study. The results show that men are more aware of investing opportunities, even though women now make the majority of big investment decisions. Furthermore, female investors exhibit poorer decision-making confidence, which lowers satisfaction levels and highlights gender differences in investing behavior. (Gaur Arti, 2011)

This study explores the variables affecting investment behavior, with a particular emphasis on the influence of gender and age on risk tolerance and decision-making. It argues that people have different financial planning demands, even though they may seem identical at first. Since age and gender play crucial roles in determining an investor's willingness to take risks, an investigation of the elements influencing investment decisions based on these characteristics is warranted because demographics alone are insufficient. (Dash, 2010)

An investigation of the impact of demographics (gender, age, etc.) on investment decisions (priorities, period, etc.) was conducted in Nagapattinam, India. It was

discovered that although some demographic indicators do not significantly affect investment decisions, others do. Additionally, the study sheds light on investor preferences for different investment strategies. (Geetha & Ramesh, 2012)

Families, society, and the country are all strengthened by women. Even when individuals make a monetary contribution, they frequently have little say in investing choices. Men have historically made the majority of the decisions about investments, but societal changes are enabling women to take a more active role. According to studies, women may be more careful investors, favoring lower-risk investments and devoting more time to option analysis. The purpose of this study is to investigate the disparities in investing behavior between the sexes and the underlying causes of such discrepancies. In order to build a more diverse and knowledgeable investing environment, it's critical to comprehend how men and women approach financial decisions. (Rana, 2020)

Numerous studies highlight gender disparities in investment behavior, with women generally displaying a more conservative approach. This study focuses on employees, using a survey method to analyze gender differences in investment preferences. The results reveal significant variations in choices related to health insurance, fixed deposits, and market investments, emphasizing the need for tailored financial products. (Bhushan Puneet, 2013)

Making decisions, which entails selecting a course of action after weighing your options, is essential to reaching your objectives in the cutthroat business world. Multifaceted knowledge, a grasp of human nature, and skill development are necessary for success in order to achieve the best possible investment results. The demographics of investors differ, which makes it difficult to determine the best course of action when it comes to financial objectives, risk tolerance, and potential behavioral biases. (Kannadhasan, 2006)

In order to improve on Minsky's explanation of financial instability and market reactions, this article integrates psychology and economics. The research examines recent advances in behavioral finance and emphasizes how little emphasis has been placed on the incentive to act in the face of uncertainty. It investigates the psychological facets of economic theory, following the trail of the Scottish Enlightenment, Keynes, and Minsky, and goes into the emerging topic of emotional finance. (Dow, 2010)

For financial actors, selecting the appropriate exchange rate is a critical yet difficult choice. This study investigates whether and to what extent individual judgment affects these choices in actual marketplaces. Through the integration of time series analysis and multi-criteria analysis, the researchers developed a model that explicitly searches for the influence of judgment on decision-making. They tested the model in the Turkish market and discovered that taking into account non-profit considerations (such as judgment) actually assisted in preventing poor decisions. This implies that decisions about exchange rates are positively influenced by judgmental considerations, and the suggested model provides a trustworthy framework for doing so. (Akincilar, 2017)

Even though teenagers frequently have great expectations for their education and careers, the transition out of school is marked by a lack of institutional supports, continuing education, and a wide range of options for juggling work, family, and school. What themes emerge when choosing a course of study and career path in such a setting? They use data from qualitative interviews gathered as a component of the Youth Development Study (n=1000), a long-term investigation of work through early adulthood and adolescence. Unmet expectations, delaying decisions, decision-making moments that solidified choices, and barriers and resources including family, job, school counseling, and teachers were among the many themes that emerged. These issues would make suitable research topics because they are representative of modern occupational decision making. (Mortimer, 2002)

A Companion to Economic Forecasting provides an accessible and comprehensive account of recent developments in economic forecasting. Each of the chapters has been specially written by an expert in the field, bringing together in a single volume a range of contrasting approaches and views. Uniquely surveying forecasting in a single volume, the Companion provides a comprehensive account of the leading approaches and modeling strategies that are routinely employed. (P., 2004)

To estimate some of the model's parameters, we use the explicit structure of the model as provided by the households' investment and occupation choices. The distribution of entrepreneurial potential in the

population and the key production technology parameters utilized by businesses are selected to optimize the likelihood of entering the business given initial wealth, as predicted by the model. This is accomplished through the use of two different microeconomic datasets: one gathered as part of a project led by one of the authors, and the other consisting of a series of nationally representative household surveys (SES) and featuring more accurate estimates of wealth, the timing of occupation transitions, and the use of formal and informal credit. Not every model parameter can be calculated using maximum likelihood. (Townsend, 2004)

This study explores what motivates people to invest and how their level of involvement affects their decisions. They found that highly involved investors are more interested in learning and choose investments that require more effort, while less involved investors prioritize convenience and rely on financial advisors. Interestingly, the two groups have different views on trust: consumers value individual advisors' competence and integrity, while experts focus on trust in the overall financial system. The study concludes that financial companies need to be more transparent, and consumers should develop financial literacy skills. (Sunikka, 2008)

Many traditional financial theories suggest that people act logically while making financial decisions. However, a number of studies have shown that there are circumstances in which moods and emotions can affect people's conduct, leading to unpredictable or illogical behavior that affects people's ability to make decisions. It is still unknown whether a person's demographic and psychographic traits have any bearing on how they behave while making investments. This study looks at gender, a significant demographic variable, and assesses how much it affects people's decisions about investments. The study's goal is to determine the degree to which behavioral bias affects investment decisions made by men and women, as well as if gender differentiation has a significant impact in this regard. (Mahapatra Mousumi Singha, 2015)

Utility functions – which rely on both the absolute amount of one's own resources and their relative amount in relation to peers – broadly characterize social comparison. We create and evaluate a theory that suggests that males may take more risks because they are more concerned with their social standing and that social comparison has a gender-specific impact on risk-taking. By altering the correlation of results amongst volunteers in our tests, we may change the social setting. According to our idea, substantial gender disparities only show up when hazards are positively correlated; they do not show up when risks are negatively or uncorrelatedely connected. (Friedl, 2021).

Study Objectives

As women participate more actively in the financial markets and have more control over their resources, it is critical to comprehend the relationship between gender and financial decision-making. Though financial equality has come a long way, there are still enduring disparities between the ways that men and women approach financial issues. Through an analysis of how gender affects behavior in financial decision-making and its effects on individuals, families, and the larger financial ecosystem, this research project seeks to get further into these distinctions.

The primary objective of this research is to comprehensively examine the influence of gender on financial decision-making.

1. To identify and understand the key behavioral differences between men and women in financial decision-making.
2. To identify potential biases and disparities in financial decision-making based on gender.
3. To inform the development of targeted interventions and financial products that better serve the needs of women and address gender gaps in financial well-being.
4. To consider the intersection of gender with other factors like age, income, education level.

Research Methodology

A questionnaire was designed to conduct an online survey. Demographic data, such as gender, household income, occupation, frequency of investment were the main topics of the questionnaire. In addition, the questionnaire asks about the comfort level of investors while taking risk, judgements, and instincts. Response was asked of the respondents on Five-point Likert rating scale. For 20 days in December 2023, the questionnaire was available online. A total of 136 replies were gathered. The response file was coded, Cronbach's Alpha, and statistical techniques were used to analyze

the data. Data analysis was done using the SPSS (Software Package for Social Sciences).

Data Analysis and Interpretation

Data was collected from84 male respondents and 52 female respondents total 136 respondents. There were 36.1% of the respondents who belong to below 5 lakhs category whereas 35.5% of the respondents belonged to 5 - 10 lakhs, 17.7% of the respondents belonged to 11 - 15 lakhs and 5.7% belonged to 20 lakhs + of income group. SPSS version 21.0 (Software Package for Social Sciences) was used for data analysis. The overall Cronbach's alpha is found for 11 questions which is $\alpha = 0.714$. It is stated that value greater than 0.7 is reliable. Figure gives the calculated Cronbach's alpha from SPSS.

Reliability Statistics	
Cronbach's Alpha	**No. of Items**
0.714	14

Cronbach's Alpha from SPSS

How often do you Invest ?	Male	Female	Grand Total
Rarely	23	14	37
Never	13	18	31
Occasionally	17	10	27
Frequently	17	5	22
Always	14	5	19
Grand Total	84	52	136

According to the provided statistics, 27.2 percent had done so infrequently, or 37 people (23:14), 22.8 percent of the population, or 31 individuals (13:18) had never invested, 19.9 percent had done so sometimes, or 27 people (17:10), 16.2 percent had done so regularly, or 22 people (17:5), and 14% had done so consistently, or 19 people (14:5).

How comfortable you are taking finacial risk	Male	Female	Grand Total
Never	5	10	15
Occasionally	15	14	29
Sometimes	26	20	46
Frequently	25	5	30
Always	13	3	16
Grand Total	84	52	136

The data shows that 11% of the population, or 15 people with a male to female ratio of 5:10, doesn't take any risks at all; 21.3 percent of the population, or 29 people (15:14), takes risks occasionally but not always; 33.8 percent of the population, or 46 people (26:20) sometime take risk and sometime don't; 22.1 percent of the population, or 30 people (25:5) frequently take risk; and 11.8% of the population, or 16 people (13:3), always take risk.

Would you trust your own instincts and judgement over external advice?	Male	Female	Grand Total
Never	3	9	12
Occasionally	6	6	12
Sometimes	29	17	46
Frequently	25	15	40
Always	21	5	26
Grand Total	84	52	136

According to the research, 12. individuals, or 8.8% of the population, with a male to female ratio of 3:9, never trust their instincts when making financial decisions; 12. individuals (6:6), or 8.8% of the population, don't always trust their own instincts and feelings; and 33.8 percent of people, or 46 people (29:17), sometimes trust their instincts and sometimes don't 29.4% of people, or 40 people (25:15), occasionally trust their instincts; 19.1% of people, or 26 people (21:5), usually trust their instincts.

Are you more likely to save money than invest it?	Male	Female	Grand Total
Never	16	8	24
Occasionally	24	16	40
Sometimes	16	13	29
Frequently	18	10	28
Always	10	5	15
Grand Total	84	52	136

The Data shows that 24 people, or 17.6% of the population, with a male to female ratio of 16:8, according to the study, never save money; 40 people (24:16), or 29.4%, sometimes don't save money, while 29 people (16:13), or 21.3 percent, sometimes save while sometimes don't. 28 persons (18:10), or 20.6% of the population, irregularly save money; 15 persons (10:5), or 11% of the population, consistently save money.

I believe in high risk high returns	Male	Female	Grand Total
Never	6	4	10
Occasionally	7	7	14
Sometimes	21	21	42
Frequently	21	13	34
Always	29	7	36
Grand Total	84	52	136

According to the data, 10 persons with a male to female ratio of 6:4 or 7.4% of the population do not think that there is a high risk, high return; 10.3% of people, or 14 people (7:7), believe occasionally; 30.9 percent of people, or 42 people (21:21), believe sometimes and don't believe sometimes; 25% of people, or 34 people (21:13), believe occasionally that high risk will result in high benefits; and 26.5% of people, or 36 people (29:7), believe in high risk, high returns**.**

Hypothesis

Following hypothesis were framed for the study:

H0: There is no significant relationship between gender and Risk-taking factor.

H1: Gender has a significant relation with Risk-Taking factor.

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	4.803[a]	4	.003
Likelihood Ratio	5.095	4	.000
Linear-by-Linear Association	1.913	1	.167
No. of Valid Cases	33		

The Pearson Chi – Square test shows Asymptotic Significance of 0.003 which is less than 0.05. Therefore, the decision is to reject the Null Hypothesis and to accept the Alternate Hypothesis. Hence, Gender plays a significant role in taking risk while taking any financial decision.

Conclusion

From the analysis it can be seen that people's attitudes toward financial decisions are influenced by their gender. Men and women have different risk tolerance patterns. Study shows that men typically have higher degrees of risk tolerance than women. Given its potential impact on investment choices, portfolio management and overall financial planning, this discrepancy in risk preferences is crucial for financial professionals and regulators to take into account.

The study reveals differences in men's and women's financial confidence. Men are more likely to be confident in financial matters than women, and this can lead to inequalities in the way that men and women participate in the financial markets and investment activities. Targeted interventions, such as mentorship programs, workshops, and campaigns that encourage women to participate actively in financial decision-making, are necessary to close these confidence disparities. Creating a positive, encouraging atmosphere can lead to more equitable financial results.

Managerial Implications

To close the knowledge gaps that currently exist between male and female employees in the area of finance,

organizations should think about putting in place gender-sensitive financial literacy programs. These programs might be created to address particular issues or worries that differ depending on a person's gender when making financial decisions. Employees gain the requisite skills as a result, and the workplace becomes more equal and collaborative.

The need to encourage gender diversity in financial department leadership roles is also highlighted in the study. In order to improve the process of making financial decisions, companies should make a concerted effort to achieve gender parity in key decision-making positions. Different viewpoints and methods of approaching problem-solving are brought to bear by diverse leadership teams, and this can result in more creative and successful financial solutions.

Understanding how gender affects financial decision-making can assist businesses in customizing their offerings to better satisfy the wide range of demands and tastes of their clientele. By better understanding how gender affects financial behaviors, marketing initiatives may be created that can help businesses better engage their target market. A higher degree of client pleasure and loyalty may arise from this level of awareness.

In conclusion, managerial practices will be greatly impacted by how gender affects behavior in financial decision-making. Workplace dynamics, employee satisfaction, and effective financial strategies can be planned by organizations that proactively address gender-related difficulties in financial decision-making processes.

Reference

Akincilar, A. (2017). Do Judgmental Factors Lead to a Good Decision on Investing in a Currency or Mislead the Financial Player?

Bhushan Puneet, M. Y. (2013). Gender Differences in Investment Behaviour among Employees. Asian Journal of Research in Business Economics and Management.

Dash, M. K. (2010). Factors Influencing Investment Decision of generations in india. ABV-Indian Institute of Information Technology and Management, Gwalior, India.

Dash, M. K. (2010). Factors Influencing Investment Decision of generations in india. ABV-Indian Institute of Information Technology and Management, Gwalior, India.

Donald R. Kaldor, D. G. (1969). A Maximizing Model of Occupational Decision-Making.

Dow, S. (2010). The Psychology of Financial Markets: Keynes, Minsky and Emotional Finance. Edward Elgar Publishing Ltd.

Dr. N.S.V.N Raju, D. A. (2020). An Analysis on Investor's Perception towards Investment.

Decision with reference to Indian Scenario. - Palarch's Journal Of Archaeology Of Egypt/Egyptology.

Fish, J. (2012). Behavioral Finance: A Study of Gender Affects on Investing Decisions. Undergraduate Honors Theses.

Friedl, A. (2021). Social comparison and gender differences in financial risk taking.

Gaur Arti, j. S. (2011). Difference in Gender Attitude in Investment Decision Making in India. Research Journal of Finance and Accounting.

Geetha, N., & Ramesh, M. (2012). A study on relevance of demographic factors in investment decisions.

Jonas Berggren, R. G. (May 2010). Gender difference in financial decision.

Kannadhasan, M. (2006). Role of Behavioural Finance in Investment Decision.

Kaur, R. (2018). FINANCIAL DECISION MAKING: DOES GENDER REALLY MATTER? Journal of Management (JOM).

Kota, M. S. (2019). The Role of Working Women in Investment Decision Making in the Family in India. Australasian Accounting, Business and Finance Journal.

Loibl, T. K. (2008). Gender Differences in Investment Behavior. Handbook of Consumer Finance Research.

Mahapatra Mousumi Singha, M. S. (2015). Behavioral Finance: A Study on Gender Based Dilemma in Making Investment Decisions.

Manish Sharma, H. B. (2019). The Role of Working Women in Investment Decision Making in the Family. AABFJ.

Mortimer, J. T. (2002). The Process of Occupational Decision Making: Patterns during the Transition to Adulthood.

Ms. Poonam Rani, D. K. (2019). Effect of Occupation and Household Income on the Financial Knowledge of Working Class of National Capital Region of India. International Journal of Management Studies.

Nadya A. Fouad nadya, S.-y. K.-h. (2015). Family Influence on Career Decision Making: Validation in India .

Neha Ramnani Bhargava1, D. S. (2017). Impact of Financial Literacy on Personal Financial Management Based on Occupation .

P., M. (2004). Decision-Based Methods for Forecast Evaluation. Townsend, R. (2004). Evaluation of financial liberalization: a general equilibrium model with constrained occupation choice.

Powell, M. (1997). Gender differences in risk behaviour in financial decision-making: An experimental analysis. Journal of Economic Psychology, 605-628.

Rana, S. (2020). Gender Differentiation on Investment Behavior.

S. Hemalatha. (n.d.). Factors Influencing Investment Decision of the Individual Related to Selected Individual Investors in Chennai City. International Journal of Innovative Technology and Exploring Engineering (IJITEE), 2019.

Sagar Patil, V. B. (December 2021). A study of factors affecting investment decisions in India. Asia Pacific Management Review, 197-214.

Sarang Shankar Bhola, V. S. (2012). A Study of Relationship between Occupation and Individual Investment. 11.

Sunikka, A. (2008). Investment triggers and trust. A comparative study of perceptions of consumers and financial experts.

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VALUE ADDITION THROUGH EDUCATION

Beyond the Walls: The Rise of Old Age Homes in India

Abstract

The emergence of old age homes in India reflects a significant shift in societal dynamics and family structures, driven by urbanization and changing caregiving expectations. This case study examines the rise of institutional eldercare and its cultural implications. This case study highlights how traditional norms are being challenged by more individualistic, market-driven approaches. It explores societal perceptions of old age homes, along with the operational challenges they face, such as securing funding, qualified staff, and adequate infrastructure. The study emphasizes the need for affordable models and greater government support to make eldercare accessible to a wider population. As India's elderly population continues to grow, the future of old age homes appears promising, provided there is investment in quality care and social change. The study calls for a reimagined approach to eldercare – one that respects the dignity of aging, allows independence, and builds a future where growing old is embraced, not feared.

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Keywords: *Old Age Homes, Nuclear families, Social interaction, Care Quality, Financial Resources.*

Discussion Questions

1. How does the trend of old age homes impact the traditional family values and intergenerational relationships?
2. How can the quality of care and services provided by old age homes be evaluated and improved?
3. What are the social and cultural implications of the growing acceptance of old age homes in India?
4. What are perception and perspectives of residents and their families regarding old age homes.
5. What are the primary challenges and opportunities associated with establishing and operating old age homes in India?
6. How can these facilities be made more accessible to a wider range of individuals, including those with limited financial resources?
7. What would be the future trends and prospects for the growth of the old age home industry in India.
8. Do you think that Old Age Homes can be a really big business idea?

Ajanta Roy, a seasoned market researcher, sat at her desk, surrounded by stacks of reports and data sheets, reflecting on the shifting demographics of India's aging population. But this project was different. It wasn't just another assignment for a corporate client looking to break into a new market; it was a deeply personal exploration of how India, a country steeped in tradition, was dealing with the realities of an aging society. Her client, a giant corporation with an ambitious vision, was intending on exploring the concept of old age homes, and Ajanta knew that the stakes went far beyond profit margins.

India's societal landscape was changing, shaped by rapid urbanization, nuclear family structures, and the pressures of modern living. Traditional caregiving, once centered around the joint family system, where elders were cared for at home, was increasingly being challenged. The rise of old age homes was a testament to this transformation. Once viewed with skepticism and even disdain, these institutions were gaining acceptance, reflecting a cultural shift in how the elderly were perceived and cared for.

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But this shift was not without its controversies. The introduction of old age homes posed questions that cut to the core of Indian values. Were these institutions a necessary response to the practical needs of an aging population, or did they signal the erosion of deep-rooted familial bonds? Could old age homes, with their promise of professional care, companionship, and community, coexist with the sanctity of family responsibility, or were they destined to replace it? Ajanta was determined to find answers. She had spent months exploring into the intricacies of India's aging population, conducting interviews with senior citizens, their families, and eldercare professionals.

Case Background

The traditional Indian family, characterized by extended households, has evolved considerably in recent times. Factors such as urbanization, economic opportunities, and changing lifestyles have led to a shift towards smaller, nuclear families. As a result, the responsibility of caring for elderly parents often fell solely on individual family members. The concept of old age homes, once considered unconventional in India, had gained significant attention in recent years. The need for specialized care for the elderly has become increasingly apparent due to evolving society and lifestyles change. The changing dynamics of modern life, such as increased urbanization, nuclear families, and the demands of professional careers, have led to a shift in societal attitudes towards elder care.

Many families found it challenging to provide the necessary attention and support to their aging loved ones due to various constraints. Old age homes offered a viable solution to these challenges. These facilities provided a safe and comfortable environment for the elderly, equipped with essential amenities and professional care. The elderly could enjoy companionship, social activities, and specialized medical assistance, ensuring their well-being and quality of life. There was growing acceptance of old age homes in India. It was a testament to the evolving cultural norms and the recognition of the importance of elder care. As the country advanced, the demand for old age homes was anticipated to increase, showcasing a compassionate and inclusive change in the social fabric.

Changing Dynamics of Aging

Aging, a universal human experience, is characterized by a gradual decline in physiological functions essential for survival. While often associated with age-related diseases like cancer and heart ailments, aging impacted all individuals, regardless of their health status. Health, in the context of aging, consisted of physical, mental, and social well-being. A healthy lifestyle for the elderly involved regular physical activity, a nutritious diet, and avoiding addictive substances. However, the aging process led to a decline in the immune system, making older individuals more susceptible to degenerative and communicable diseases.

As individuals aged, their bodies underwent various changes, including decreased muscle mass, reduced bone density, and diminished sensory functions. These changes impacted their daily activities and increased the risk of falls and injuries. In addition to that, cognitive decline, such as memory loss and difficulty concentrating, was a common aspect of aging. The United Nations Decade of Healthy Ageing emphasized the need for a holistic approach to aging. It recognizing that the effects of aging are not confined to health alone but also included economic, social, and cultural dimensions. It required a coordinated response from governments, civil society, and the private sector.

The global population is growing, with a rising proportion of older individuals. In 2022, there were 1.1 billion people aged 60 or older, accounting for 13.9% of the total population. This figure is projected to double to 2.1 billion by 2050, with the proportion of older adults increasing to 22% of the global population. This demographic shift will be evident in all regions of the world. More developed regions will see the share of older adults rise from 26% to 34% between 2022 and 2050. In less developed regions, the increase will be from 11.5% to 20%. The absolute number of older adults in less developed regions is expected to more than double, from 772 million in 2022 to 1.7 billion in 2050.

India, known for its youthful demographics, is in the midst of a rapid demographic transition with a rapidly growing elderly population. According to the 2011 Census, India had approximately 107 million people aged 60 and above, accounting for 8.6% of the total

[3]Caring for Our Elders Institutional Responses, INDIA AGEING REPORT 2023

[4]Caring for Our Elders Institutional Responses, INDIA AGEING REPORT 2023

population. This figure is projected to rise to 173 million by 2030, representing 11.4% of the population. According to the India Ageing Report 2023 by International Institute for Population Sciences and United Nations Population Fund suggested that there were 149 million persons aged 60 years and above in 2022, comprising around 10.5 percent of the country's population. By 2050, the share of older persons will double to 20.8 percent, with the absolute number at 347 million. This trend, coupled with changing societal norms, has led to a re-evaluation of traditional caregiving models. The decline of extended families, urbanization, and the increasing number of working women have created challenges for families in providing adequate care for their elderly members. The growing number of elderly individuals has placed a strain on traditional family-based care, as many families struggle to balance their own needs with the demands of eldercare.

Issues Faced by Elderly

In India, the financial vulnerability of the elderly was one of the most pressing issues afflicting them. Majority of the elderly population faced poverty and lacked a stable source of income. This was a major concern as many older individuals did not have access to pensions or savings to support them in their later years. For women and those living in rural areas, the situation was even more dismal. Many elderly women, spent their lives working in the informal sector or as homemakers. They did not have access to formal financial support systems, leaving them economically marginalized. Additionally, the elderly in rural areas often lacked access to basic services, including healthcare, further deepening their vulnerability.

Social challenges further complicated the picture for India's elderly. Elderly often faced social stigma and discrimination. This was further intensified by societal expectations that prioritizing the youth segment. The abuse of elderly individuals, particularly within family settings, was a growing concern in the absence of inadequate social safety nets. This abuse could take many forms like emotional, physical, and financial, and often goes unreported. Despite these challenges, India had made many positive advances in addressing the needs of its aging population. The programs like the National Programme for Health Care of the Elderly (NPHCE) and the National Social Assistance Programme (NSAP) were working for the benefit of elderly. The NPHCE aimed to provide specialized care for the elderly, while the NSAP offered financial support to those in need. However, these initiatives, though important, were insufficient looking at the scale of the challenge. Therefore, there was a need to develop a comprehensive framework to meet the needs of its aging population and geriatric care.

India needed more long-term care facilities, especially in rural areas, where access to healthcare remains limited. Additionally, there was a growing need for trained medical professionals who specialize in elder care to ensure that the elderly receive the appropriate attention and treatment. The promotion of social inclusion was another critical area for action. The positive interactions between seniors and younger generations could build social cohesion and battle the isolation faced by elderly. The use of technology presented many opportunities to improve the lives of the elderly. The usage of technology, can enhance accessibility, affordability, and independence for older adults. For instance, telemedicine and mobile health services are there to bridge the gap in healthcare access for elderly individuals in remote locations. India must also prioritize the elderly in disaster planning and response, as they are often among the most vulnerable during emergencies. Additionally, industries and services tailored to the elderly, such as healthcare, financial services, and leisure, should be supported to meet the growing demand.

Benefits of Old Age Homes

Old age homes offered a range of services like accommodation, meals, healthcare, and recreational activities. They provided a safe and secure environment for seniors, allowing them to maintain their independence and quality of life. These homes often had social programs and activities that encourages socialization among residents. The residents had opportunity to interact with peers, engage in group activities, and form lasting friendships. This helped them in combating loneliness and isolation, which are common issues among the elderly.

Many old age homes had on-site medical facilities, providing access to regular health checkups. At some places, even emergency care and on call doctors were also available. This ensured that residents receive timely medical attention. Many old age homes catered to the specific needs of elderly like dementia or physical disabilities. These specialized facilities offered tailored

care and support, enabling residents to maintain a good quality of life. These homes offered a sense of security and assurance that the elderly are well-cared for. This could offer peace of mind to their kin as they are living in a safe and supportive environment.

While old age homes have become increasingly popular, there were many challenges to overcome. One of the main concerns was ensuring the quality of care provided by these facilities. There was a need for adequate staffing, training, and supervision to ensure that residents receive the necessary support and attention. Also, affordability was another issue, as the cost of living in an old age home could be a significant burden for many families. Despite these challenges, old age homes offered a promising solution for the growing number of elderly individuals in India. As the country continued to develop and modernize, it was essential to invest in infrastructure and services that supported the needs of the elderly population. The old age homes could help seniors to enjoy a fulfilling and dignified life within a supportive environment.

Drivers of Growth of Old Age Homes

There were many factors that contributed to the increasing popularity of old age homes in India. As the economy grows, more people had the financial means to afford the cost of old age homes. India's population was rapidly aging, with a significant increase in the number of elderly individuals. This demographic shift had created a greater demand for specialized care. Even the lower birth rates had led to smaller family sizes, making it challenging for families to provide adequate care for elderly relatives. The advances in healthcare have led to longer life expectancies, increasing the demand for long-term care services. The prevalence of chronic diseases among the elderly, such as diabetes and heart disease, requires specialized care that may be difficult to provide at home. The rise of nuclear families has reduced the availability of family members to provide care for the elderly. The rapid urbanization of India has resulted in families moving away from their ancestral homes, making it difficult to provide care for elderly parents living in rural areas. The increasing number of women participating in the workforce has limited their ability to provide full-time care for elderly relatives.

Traditional cultural norms that emphasized family care for the elderly were gradually evolving, with more people considering old age homes as a viable option. Even the stigma associated with placing elderly relatives in old age homes is gradually decreasing, making it a more acceptable choice for families. Even the traditional views of aging were evolving, with more people recognizing the benefits of institutional and professional care. Even the old age homes were striving to enhance their facilities and services, offering a more comfortable and enjoyable experience for residents. Even the government policies and programs were supporting the development of old age homes, providing incentives and subsidies to encourage their growth.

Field Survey

The qualitative research team conducted online in-depth interviews with a carefully selected sample of respondents. These respondents were from upper-middle-class and middle-class backgrounds with a stable economic status. The selection criteria focused on two key groups: salaried individuals or business owners in their late 50s and above, and adults in their 20s or older with parents in their 50s or older. The selection of the right participants was crucial, given the sensitivity of the topic under study. Initially, there was some reluctance from the parents to participate, but the dedicated efforts of the field teams ensured excellent participation. All sessions were recorded with the explicit consent of the respondents, which was obtained as part of adhering to the ethical standards and code of conduct for qualitative interviews. The discussions were natural and free-flowing, which added richness to the insights gathered. These interviews were conducted in the comfort of the respondents' homes via online sessions proved to be highly effective, allowing participants to engage more openly. In studies involving sensitive topics, having an empathetic and experienced research partner with a deep understanding of the subject matter is essential. Their expertise helped in ensuring the discussions were handled with care. This helped in creating a safe environment for participants to share their thoughts freely. This combination of a well-chosen sample, comfortable setting, and expert guidance led to a successful and meaningful research experience.

Field Insights

Ajanta's field work revealed a complex web of emotions and perceptions. There was a growing acceptance of old age homes, driven by the desire for premium, personalized care that allowed the elderly to maintain their dignity and independence. Yet, the stigma

remained, many still viewed these homes as a last resort, a symbol of abandonment rather than care. Traditionally, aging parents were cared for within the family, fostering strong intergenerational bonds. However, the rise of old age homes has subtly shifted these values, as many elderly individuals now considered moving into such facilities after retirement. Parents had begun acknowledging the challenges of living with their children, noting that familiarity breeds contempt and that maintaining separate lives could preserve harmony. While adult children might appreciate the concept of old age homes, they often hesitated due to societal judgments and the fear of "what will people say." The evaluation of the quality of care and services in old age homes was crucial to improving their reputation.

Factors such as medical assistance, emotional support, and a clean, safe environment were key indicators of quality, and enhancing these could raise the standard of care. Socially and culturally, the growing acceptance of old age homes reflected a shift in values, where independence for both the elderly and their children became more important. The challenges in establishing and operating old age homes included high costs and societal stigma. To make these facilities more accessible, affordable options should have been explored, ensuring even those with limited financial resources could benefit. The future of old age homes in India looked promising as more families explored this option, creating opportunities for it to become a significant industry, particularly if innovative and empathetic business models were adopted to cater to the diverse needs of India's elderly population.

Business Dilemma

As Ajanta immersed herself deeper into the project, she realized that the key to success lay not in the opulence of the facilities or the technological advancements they offered but, in their ability, to create a genuine sense of belonging. "It's not about building luxurious old age homes," she thought. "It's about building communities." The senior citizen needed to feel like they were in a home, not an institution. They needed spaces that nurtured their independence, while providing them with the support they required to age gracefully.

The key insight that emerged was the desire for independence. Parents expressed a strong wish to lead their own lives, free from reliance on their children and enjoying life on their own terms. Similarly, the children valued their independence, preferring minimal interference and avoiding the responsibility of physically caring for their aging parents. Another significant insight was the need for emotional security. Many elderly couples harbored a deep fear of losing their partner, a practical yet daunting concern. Questions such as "What will happen next?" "Who will take care of me?" "Can I live alone?" were frequently raised. There was hesitation about discussing these concerns with their spouse while both were still alive, yet the fear remained.

For the children, the thought of balancing their career and family, while managing the loss of a parent, created additional stress. Workplace pressures – such as deadlines, long hours, and high demands – added to their concerns about how to handle everything. Therefore, the emotional security thus emerged as a critical need for both the elderly and their families. Old age homes, as a concept, are becoming increasingly popular in addressing these concerns. With the right approach, these facilities can be integrated with various ancillary services, making them not only a viable solution for aging populations but also a significant business opportunity.

Road Ahead

Ajanta stood by the window of her office, gazing at the distant horizon. As she reflected on the questions that had guided her research, a deep sense of clarity began to settle in. The growing trend of old age homes in India was not just a solution to modern urbanization; it was a reflection of a society in transition. The delicate balance between preserving traditional family values and adapting to a rapidly changing world was at the core of her inquiry. She realized that the rise of old age homes had undeniably altered intergenerational relationships. But this shift didn't have to be seen as a breakdown of tradition, it could instead represent an evolution, where families and communities work together to ensure the best possible care for the elderly.

Ajanta's thoughts then shifted to the quality of care in these institutions. She believed that with better training, empathy-driven staff, and more holistic care models, old age homes could become places where the elderly not only lived but thrived. Regular evaluations, transparent feedback systems, and family involvement would be key in elevating standards and keeping the focus on continuous improvement. The growing acceptance of old age homes in India carried significant social and

cultural implications. Ajanta mused that the stigma once associated with placing parents in such homes was slowly fading. Society was beginning to see the value of these institutions, not as places of isolation but as supportive communities. The perspectives of residents and their families were crucial in shaping this narrative. Ajanta believed that more dialogue, more shared stories of success and fulfillment, would help shift perceptions positively. Listening to the voices of those directly affected by the old age home experience would lead to more informed and compassionate practices.

The challenges of running old age homes in India were numerous – funding, infrastructure, skilled staff – but Ajanta saw opportunities too. As the elderly population grew, so did the potential for innovation in eldercare. Technology could enhance care, while partnerships between government, private institutions, and NGOs could provide the necessary financial backing. For Ajanta, accessibility was one of the most pressing issues. She thought about those with limited financial resources, those who needed care but had few options. Old age homes should not be a privilege of the wealthy; they should be inclusive, supported by government policies that ensure subsidies, affordable housing, and comprehensive social security measures. As she imagined the future of the industry, Ajanta could see the potential for growth. India, with its rapidly aging population, was on the cusp of a significant opportunity. Old age homes could indeed become a successful business model, but with a difference – they could be businesses with a heart.

With these thoughts, Ajanta felt a renewed determination to contribute meaningfully to this sector. She envisioned a future where old age homes were no longer seen as the last resort but as places of comfort, dignity, and joy – a future where aging became not a burden, but a journey filled with care, community, and purpose. In that moment of reflection, she knew her work was not done. These questions, which once felt like challenges, now seemed like stepping stones towards a better future for India's elderly. And as she closed her notebook, Ajanta knew that the answers would continue to evolve, just as society and the concept of aging itself would.

References

Roy, C., Kumar, S., Kumar, G., Sati, V. P., & Dhar, M. (2024). Population Aging in India: A Regional Comparison and Implications for Older Persons' Welfare and Healthcare Infrastructure. Journal of Population and Social Studies [JPSS], 32, 399-415.

Rajpal, S., &Ronanki, S. (2023). Population Ageing in India: Assessing Inter-State Variations.

Gopinathan, S., Thomas, B. M., Sodhi, C., & Pandey, A. K. (2023). Socio-economic and demographic disparities in the health status of the elderly in India. Indian Journal of Gerontology, 37(2), 226-242.

Mohan, A., Jothikaran, T. A. J., Gudi, N., & Ashok, L. (2024). Growing Old in India: Mapping Health and Social Welfare Policy Responses on Aging. In Handbook of Aging, Health and Public Policy: Perspectives from Asia (pp. 1-16). Singapore: Springer Nature Singapore.

Vignesh, N. J., George, N., Hemadharshini, S., &Sriranganathan, T. (2022). A comparative study on quality of life of elderly among those living with families and in old age homes in a District in South India. Journal of the Indian Academy of Geriatrics, 18(4), 196-200.

Mistry, M. M., Devi, S., Dumbre, D., Chavan, M. R., Choure, M. S., & Bhagat, M. P. (2023). Old age homes and Caring for elderly population in Pune: Need or Dilemma. Journal of Survey in Fisheries Sciences, 10(1S), 3279-3285.

Seth, A., Nag, M. B., Goswami, A., Magan, A., & Prasad, A. (2023). Affordable community living model for the senior citizens: An Indian context. Indian Journal of Gerontology, 37(1), 166-192.

Mishra, B., Pradhan, J., & Dhaka, S. (2023). Identifying the impact of social isolation and loneliness on psychological well-being among the elderly in old-age homes of India: the mediating role of gender, marital status, and education. BMC geriatrics, 23(1), 684.

Soni, A., & Lodha, R. S. (2024). A comparative study of quality of life of elderly living in old age homes and within family. International Journal of Community Medicine and Public Health, 11(7), 2656.

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CLASH - Amazon vs Walmart

Author: Nirmalya Kumar

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The Clash: Amazon vs Walmart by Nirmalya Kumar is a business strategy book that explores the intense competition between two retail giants, Amazon and Walmart. It examines how these companies have revolutionized the retail industry – Walmart through its dominance in physical stores and Amazon in e-commerce. The book offers insights into their contrasting business models, strategies, and how they influence the future of retail. It is an engaging and insightful exploration, blending in-depth research with forward-thinking analysis.

The book is an excellent resource for readers interested in business strategy, the evolution of retail, and the interplay between disruptive innovators and established market leaders. The book's clarity and relevance make it highly accessible, appealing to those eager to understand the ongoing shifts within the retail industry. It is divided into nine chapters taking the audience through the birth and rise of Walmart, journey of amazon in the e-commerce space, examining the profitability of Amazon in the light of value proposition of online versus offline.

The first chapter of the book narrates the Walmart journey in a very effective way. Walmart was a disruptive force in the retail sector before the e-commerce boom in 2000. It was one of the first companies to use information technology not just for auditing but for managing its operations efficiently. Walmart's marketing strategy, based on the 4Ps (product, price, place, promotion), created a strong value proposition of offering the lowest prices. This was supported by an efficient supply chain, targeted advertising, and a unique financial strategy of reducing gross margins while increasing sales per square foot. As Walmart grew, its dominance forced suppliers to shift from controlling retailers to developing collaborative relationships, focusing on brand and SKU rationalization.Since 2000, Walmart has heavily invested in building its e-commerce business, becoming the second-largest online retailer in the U.S. after Amazon. However, its online sales have been less profitable than traditional in-store sales, posing challenges for its overall profitability.

On the pretext of this journey of Walmart, Mr. Kumar says that Amazon's strategic decisions and initiatives have been consistently guided by a commitment to achieving long-term market leadership through a strong customer orientation, rather than focusing on short-term profitability. This commitment is reiterated annually to shareholders, emphasizing Amazon's dedication to customer satisfaction over immediate financial gains. This approach enables the company to continually experiment with its business model and introduce innovative services for its customers.

Jeff Bezos has guided Amazon based on a unique set of core principles that prioritize customer needs above those of competitors, overlook short-term profitability, and emphasize the importance of building long-term value. This customer-centric approach has been deeply embedded in Amazon's culture and operations, influencing various principles, policies, and practices over the years. A key aspect of this strategy is Amazon's focus on personalization rather than traditional market segmentation, which has solidified its position as a formidable player in the retail industry. This commitment to understanding and anticipating customer preferences has enabled Amazon to deliver tailored experiences that resonate with consumers.

Walmart and Amazon, with revenues of $611 billion and $514 billion respectively, are the two largest companies in the world, yet they follow distinct strategic paths. Walmart's market capitalization, at around $420 billion, is less than a third of Amazon's $1.5 trillion, reflecting the divergent investor perceptions of their future growth potential. Historically, Walmart dominated offline retail while Amazon focused on e-commerce, but both companies are now converging toward omni-channel strategies. Walmart has aggressively expanded its online presence, achieving $82 billion in e-commerce sales in 2022, while Amazon, through acquisitions like Whole Foods, is integrating physical retail into its operations, generating $19 billion from brick-and-mortar stores.

Mr. Kumar provides a thorough analysis of the business model, offering insightful points and valuable observations. His deeper exploration highlights key aspects of the operational and strategic frameworks, shedding light on both the opportunities and challenges within the industry. He points out that online retail shifts the labor burden from consumers (visiting stores) to retailers (fulfillment and delivery to homes). Initially, it may seem that online retail requires fewer assets, such as store real estate and inventory, and lower operating costs compared to traditional brick-and-mortar stores. However, Amazon Prime has conditioned consumers to expect "free" delivery, obscuring the substantial fulfillment costs that retailers incur. As the number of Prime subscribers have grown, Amazon's delivery costs as a percentage of online retail sales has worsened, exceeding 40 cents for every dollar of online retail revenue in 2022.Amazon's online retail business operates as a loss leader, subsidized by its Marketplace, advertising revenue, and Amazon Web Services (AWS). In contrast, Walmart achieves higher asset and inventory turnover ratios, with both companies having similar sales per employee.

Mr. Kumar puts forward the fact that online retail is profitable for digital products, as customers are generally willing to cover the full cost of delivery. However, it remains unprofitable for grocery delivery due to high fulfillment costs. Amazon's evolving business model increasingly mirrors that of Google and Meta. Just as Google provides search services and Meta offers social networking "for free" while monetizing user data, Amazon provides online retail services at low cost, recouping losses by leveraging customer data and selling advertising. This shift highlights Amazon's growing reliance on advertising and other ancillary revenue streams to subsidize its retail operations.

Mr. Kumar raises an important question in his analysis: Is online retailing truly profitable? He examines the evolution of Amazon's business model, noting that the company's original concept was to be a pure online retailer. Before the development of AWS (cloud computing services), advertising (charging vendors to promote products on Amazon's platform), or Marketplace (third-party sellers paying commissions to use the platform), Amazon's core idea was straightforward: purchase products from suppliers, maintain inventory, sell directly to customers through its website, and handle delivery. This model initially captured the enthusiasm of investors. However, Kumar points out that today, revenues from pure online retail make up less than half of Amazon's total revenues, as the company has increasingly diversified its revenue streams.

The COVID-19 pandemic accelerated the shift to online retail, but as the world returned to normalcy in 2021 and 2022, physical retail rebounded, benefiting Walmart. Amazon, however, saw its online retail revenues stagnate as consumers gravitated back to in-person shopping. This strategic shift raises a crucial question: are Walmart and Amazon on a collision course, where their growing overlap will spark fierce competition? Or, will they continue to find complementary strategies that allow them to coexist, each leveraging its strengths in both digital and physical retail spaces? The answer will likely define the future of retail. The discussion concludes by analyzing the broader competition between disruptors and incumbents, such as AirBnb versus Marriott, which is a prevalent theme in today's business landscape.

The book is well-researched and provides an insightful analysis of both companies' strengths and strategies. Walmart, which revolutionized brick-and-mortar retail in the 80s and 90s, and Amazon, which disrupted retail in the digital age, now face a "clash" for dominance as the industry shifts toward omni-channel retailing. Mr. Kumar argues that Walmart's strong physical presence and supply chain efficiency are major strengths. However, Amazon matches this with its expertise in data, logistics, and customer loyalty through programs like Amazon Prime. Although Amazon's retail operations may appear less profitable, its ability to retain customers and deliver quickly solidifies its competitive position in the retail landscape.

This book is a must read for management students, entrepreneurs and individuals and reinforces our belief that – technology and innovation is the key to management.

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