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INNOVATION AND EMERGING TRENDS OF TECHNOLOGY ON THE GROWTH OF MUTUAL FUND: A LITERATURE REVIEW

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ABSTRACT

FinTech, or financial technologies, are revolutionizing the financial services industry by increasing its productivity and efficiency. This involves effective risk management, fund allocation, and transaction speed, which enhanced investor engagement in mutual funds. Disruptive technologies such as robotics, big data, robo-analytics, robo-advisors, artificial intelligence, and blockchain are transforming the industries around the world and helping asset management firms to become more productive and efficient. The purpose of this article is to explain how mutual funds and financial technology are interconnected. This article also conducts a review of the relevant literature in both fields. This study indicates that next-generation technology is transforming the investment process, making it paperless, efficient, and accessible. Globally, asset management firms are embracing AI and machine learning, which will boost operational and financial system efficiency, and the development of robo-advisors will allow them to evaluate the risk and needs of each customer and provide appropriate investment solutions. Asset management firms are being reorganized as a result of this change. Along with making procedures more efficient, these advancements are encouraging a customized approach to investment. Firms that adapt to technology changes are more likely to attract a wider range of customers and increase overall market competitiveness. The future of asset management is currently being redefined by blockchain technology, big data, analytics, and fintech.

***KEYWORDS**: FinTech, Financial Technologies, Robo-Advisor, Risk Management, Artificial Intelligence.*

Introduction

Rapid technological advancements over the last decade or so have altered the way individuals save and invest. Digital innovation has ushered in a new era in mutual fund investment. The technology trend in mutual funds is constantly revolutionizing the way investors interact with their financial portfolios by facilitating access, giving analytics, and allowing for informed decision-making. These innovations are not only enhancing efficiency and accessibility but also redefining the traditional banking paradigms. As FinTech continues to expand, it holds the potential to democratize financial services, offering new opportunities for growth and inclusion across diverse markets. Understanding these dynamics is crucial for stakeholders aiming to navigate the shifting landscape of finance. The rise of financial technology has significantly impacted mutual fund investments, making them more accessible and efficient for a broader audience. Innovations such as robo-advisors leverage algorithms to provide tailored investment

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strategies, allowing individuals to invest in mutual funds with minimal fees. Additionally, big data analytics enables asset managers to make informed decisions by analyzing market trends and investor behaviors, ultimately enhancing portfolio performance. As blockchain technology gains traction, it promises to streamline transactions and improve transparency in mutual fund operations, further attracting investors seeking security and efficiency in their financial ventures. Investors can combine their money and purchase various securities through these funds, which are operated by asset management companies (AMCs). Professionals who want to sell mutual funds must hold a Securities and Exchange Commission (SEC) license and follow its rules. AMCs and financial intermediaries, including branches, independent agents, and digital distributors, offer mutual fund purchase and sell services. Because it enables the transition from traditional to digital services, technology use—also referred to as financial technology or fintech—has grown in significance within the financial sector. As a result, mutual fund distributors, especially brokerages, are now more competitive, and mutual fund distribution channels have grown. Acceptance of using digital investment services becomes a crucial factor to take into account as distributor-investor interactions shift more and more toward online or remote services. The various kinds of services that distributors offer should be understood by individual investors, especially as described in investment articles. Although Fintech has the potential to greatly enhance the provision of financial services, including investments in mutual funds, distributors' adoption of the technology is still a major problem. Several factors are important determinants of technology adoption, including behavioral intention (BI), perceived usefulness (PU), and perceived ease of use (PEOU). Developing successful tactics to boost acceptance among mutual fund distributors requires an understanding of these elements.

In this article, we will examine how mutual funds and financial technology are interconnected, how mutual funds are changing in the modern age, including the influence of digital advancement, how next-generation technology is transforming the investment process and affecting the future of mutual fund management.

Research Methodology

The purpose of this paper is to provide a comprehensive overview of the studies already done on the topic of technology and investment by various researchers at national and international levels. Research work published in the most relevant databases along with relevant books on the topic was reviewed. In this study, several research papers have been reviewed from the existing literature available worldwide from the year 2008-2024. The existing research has been reviewed in terms of innovation and emerging trends of technology on the growth of mutual funds. The analysis is done as per the objectives discussed.

Literature Review

The growing adoption of AI and robot-based systems has a significant influence on employment, society, and the economy. AI creates mechanical, analytical, and intuitive intelligence. Additionally, human jobs will eventually be replaced by AI, causing people to specialize in less automated fields. Online services known as robo-advisors use artificial intelligence to guide consumers through an automated investing advisory process. They use questionnaires to assess customer profiles, just like a human financial advisor, and make recommendations based on expectations for returns, risks, and goals. Robo-advisors offer a wider range of investing options, reduced fees, and improved accessibility.

Abdullah et al. (2008) performed a regression study on Malaysian mutual fund awareness and Fintech adoption. Their study revealed that there is no meaningful correlation between age and social influence, facilitating conditions, performance expectancy, or effort expectancy. The correlation between performance in mutual fund selection criteria and gender yielded the same outcome. Their study found that investors' primary criterion for choosing mutual funds was performance. According to one of their findings, people with higher levels of education are more likely to use technology for investing in mutual funds and online banking.

Teo, ErnieG.S. and Chuen, David Lee Kuo (2015) proposed using the LASIC (Low Margin, Asset Light, Scalable, Innovative, and Compliance Easy) Principles to examine how different internal and external factors affect the development of emerging fintech companies. Alibaba and M-Pesa are two of China's most successful financial technology companies. According to their findings, Connectedness is crucial for individualized financial choices, as financial institutions communicate more through social media and phones than in person, ensuring sustainable growth for businesses.

Daniel O'Keefe et al. (2016) from KPMG asked 1,500 bank customers if they were interested in and aware of digital wealth management. They found that 8 to 15 percent of investors knew about robo-advisories, but it was equally shocking to learn that 51.8% of investors knew about intelligent portfolio management and 48 percent knew about personal advisor services. Additionally, they noted a growing trend of both new and current investors turning to robo-advisory; their research suggests that by 2020, robo-advisory might have a valuation of $2.2 trillion.

Alexandra Andhov (2018) concluded that financial technology is still in its infancy and that most of its potential for development rests on the development of smart algorithms, large data storage capabilities, and computing capacity. Establishing a trusting environment for investors that allows them to participate regardless of their nation of origin has proven to be difficult for the EU. Fintech, according to the author, might assist the EU in fostering the trust that has long been a worry of the EU.

Prasada Rao et al. (2018) shows that blockchain technology's transparency, decentralization, tamper-resistance, accountability, and privacy can benefit all parties involved in the mutual fund sector. Investor trust will rise with greater openness, which will help boost productivity in the workplace by reducing paperwork through digitization. Belanche et. al. (2019) to understand how consumers are utilizing robo-advisors. Adoption of robo-advisors is impacted by mass media, consumer attitudes, and subjective norms, as well as perceived utility and attitude. Online services known as robo-advisors use artificial intelligence to guide consumers through an automated investing advisory process. They use questionnaires to assess customer profiles and make recommendations based on expectations for goals, risks, and returns, just like a human financial advisor would.

Das and Ali (2020) looks at how India's financial services sector is affected by the quick developments in financial technology, emphasizing both the advantages—such as higher Asset Under Management and better client satisfaction—and the difficulties for regulators.

Nicolescu & Tudorache (2020) examine the elements that influence decisions and evaluate the degree to which these judgments are guided by knowledge in order to understand the investment behavior of mutual funds. The study shows that knowledge plays a role in the investment behavior of CEE (Central and Eastern Europe) investors, with Hungarian investors having more experience and knowledge than other investors.

Lee, J. (2020) investigates the legal and regulatory framework for applying artificial intelligence (AI) in financial services to improve financial inclusion. It covers risk management, manipulation, investment advice, compliance, and regulation. The study also discusses ethical, privacy, and data security issues, emphasizing the need for more study on AI governance in urban planning and financial services.

Influence of Technology Over the Mutual Fund Industry

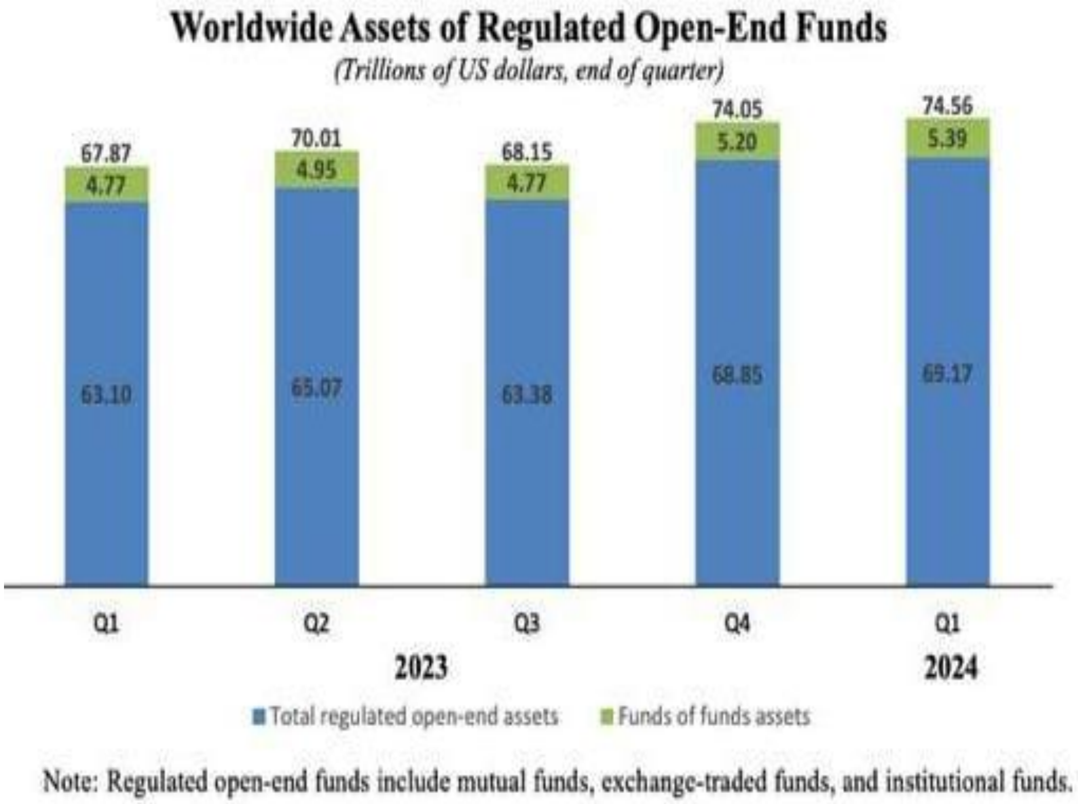
The mutual fund industry is going through a paradigm transformation as we ride the technological wave. Investors benefit from digital platforms' ease of use, accessibility, and real-time information. Robo-advisors simplify financial advice, whereas AI transforms fund management through superior data analysis and automation.

- **Digital Onboarding and Transactions:** The procedure of investing in mutual funds has changed from using traditional approaches to using digital platforms. Investors can now use websites or mobile apps to complete the onboarding procedure and carry out transactions, such as purchasing or selling mutual fund units, with a few clicks. This convenience greatly shortens transaction processing times by doing away with the requirement for physical paperwork and in-person meetings.
- **Rise of Robo-Advisors:** Automated systems known as robo-advisors use investor profiles to generate algorithm-driven financial recommendations. These tools make investment decisions more affordable and accessible for a wider audience by analyzing personal risk tolerances and financial objectives to suggest appropriate investment portfolios. With the help of this innovation, asset management companies may now concentrate on deeper activities while regular advisory responsibilities are managed digitally.
- **Enhanced Data Analytics:** Companies that offer mutual funds are using data analytics to learn more about the tastes and behavior of their investors. This feature improves the overall investor experience by allowing them to provide customized suggestions based on each investor's unique financial objectives. Additionally, data analytics helps with risk management and assessment, enabling fund managers to base their choices on market trends.

- **Increased Accessibility through Mobile Technology:** The advent of smartphones has made mutual fund investments more accessible to a broader demographic, particularly younger generations who prefer mobile options. From any location at any time, investors may perform transactions, keep an eye on their portfolios, and get real-time notifications. Due to this change, more people are investing in mutual funds.
- **Security Enhancements:** The mutual fund industry's security protocols are evolving along with technology. Businesses are putting strong cybersecurity measures in place to shield private investor data and transactions from possible dangers, which will increase investor trust.

Trends on the Growth of Mutual Funds

- The International Investment Funds Association (IIFA), which is made up of national fund associations, commissions the Investment Company Institute to produce information on globally regulated open-end funds.At the end of the first quarter of 2024, the total assets of regulated open-end funds worldwide, excluding funds of funds, rose by 0.5% to $69.17 trillion. The first quarter of 2023 saw a global net cash inflow of $814 billion to all funds, while the fourth quarter saw net inflows of $674 billion.

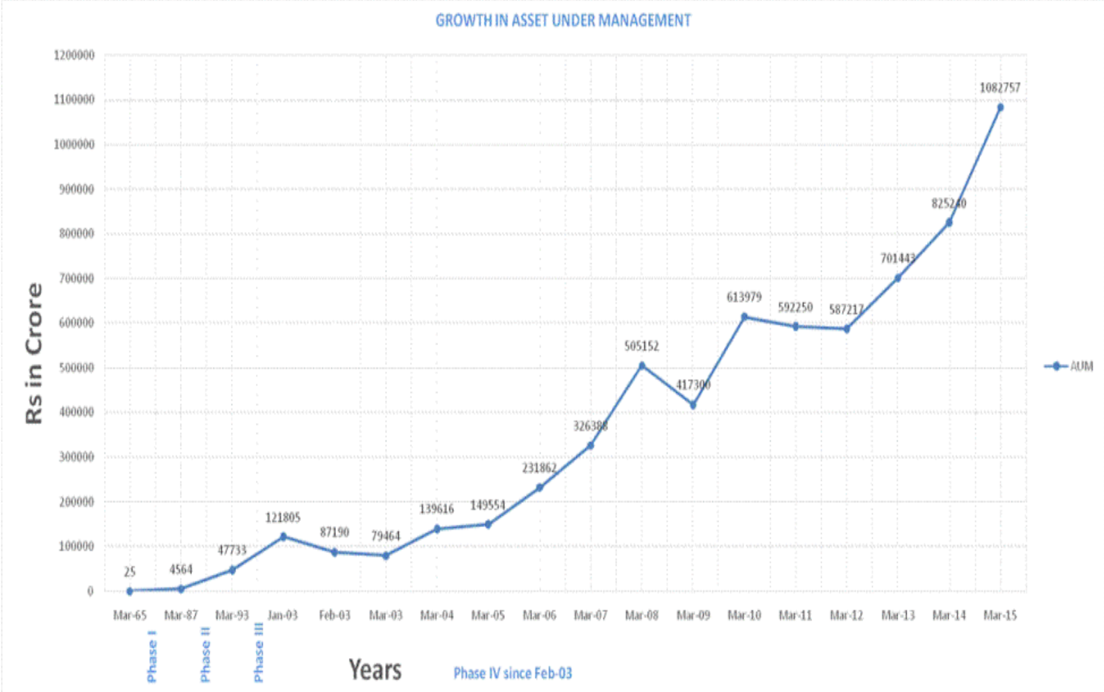


(Source: - The International Investment Funds Association;

Worldwide Regulated Open-End Fund Assets And Flows First Quarter 2024)

Note: Regulated open-end funds include mutual funds, exchange-traded funds, and institutional funds.

- The average assets under management (AAUM) of the Indian mutual fund industry increased sixfold from ₹10.90 trillion in 2014 to ₹68.08 trillion in November 2024, reaching ₹68.05 Lakh Crore (INR 68.05 Trillion). In just five years, the industry's AUM has doubled, rising from ₹27.05 trillion in 2019 to ₹68.08 trillion in 2024. Additionally, in May 2021, the sector reached a milestone of 10 crore folios. As of November 30, 2024, there were 22.08 crore accounts in all.

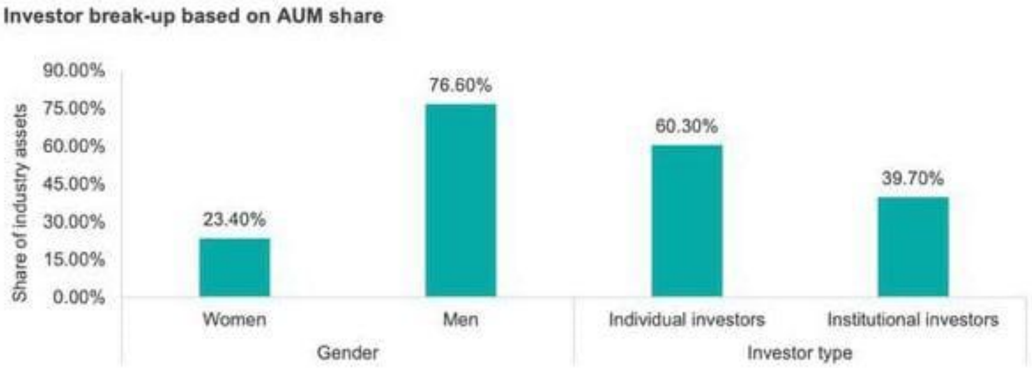


- In fiscal 2024, mutual fund assets rose 35% to an all-time high. The domestic mutual fund industry had one of its best years in fiscal 2024, as assets under management (AUM) increased by about Rs 14 lakh crore to a record Rs 53.40 lakh crore as of March 2024, up from Rs 39.42 lakh crore in March 2023. It was the largest percentage growth since fiscal 2021, when the industry grew 41%, at more than 35%.

Source:- Indian mutual fund industry; Association of Mutual Funds in India (AMFI) website (www.amfiindia.com)

Note: Excludes domestic fund of funds (FoFs)

- According to their percentage of AUM, women made up about 23% of investors, men about 77%, and individual investors around 60%; institutional investors made up about 40%.



Source: - Indian mutual fund industry; Association of Mutual Funds in India (AMFI) website (www.amfiindia.com)

- Systematic investment plans (SIPs) are becoming more and more popular among investors; in March 2024, monthly net inflows were Rs 19,300 crore, and in the fiscal year 2024, they approached Rs 2 lakh crore.

Source: - Indian mutual fund industry; Association of Mutual Funds in India (AMFI) website (www.amfiindia.com)

Regulatory Considerations Regarding use of Artificial Intelligence in Financial Industry

Regulating artificial intelligence is sometimes known as supervision. Financial institutions are already using AI to automate client interactions, assess risk, analyze credit, maximize capital, find trading opportunities, and optimize trade execution. Regulation is necessary in situations when there is a third-party dependency. Artificial intelligence presents both advantages and hazards within the financial services industry, necessitating regulation that prioritizes market safety, investor protection, and integrity. Through the use of robo-advisers, AI can expedite KYC procedures, optimize money on peer-to-peer networks, and offer more affordable information access. More specific regulations are required to address privacy and data rights, certify algorithms, and improve individual protection.

AI should provide investors greater protection and choice. It can facilitate financial access by offering more cost-effective investment guidance to customers who are otherwise unable to take advantage of investment possibilities due to a lack of knowledge. This offers a chance to utilize AI to offer customers services for investment advice or execution through robo-advisers.

Conclusion

In conclusion, technology is an intermediary for growth in the mutual fund sector as well as an enabler. Investors' interactions with their financial portfolios are being redefined by the continuous integration of technology and innovations, which enhances accessibility, efficiency, and personalization of investment. The mutual fund sector is undergoing a paradigm transition as we ride the technological wave. Investors benefit from digital platforms' ease of use, accessibility, and real-time information. While AI revolutionizes fund administration through sophisticated data analysis and automation, robo-advisors simplify investing advice. Despite these advancements, investors still need to be educated in order to properly comprehend the digital world. The industry must prioritize preserving investor education and regulatory compliance in addition to embracing these technology innovations in order to guarantee a safe investment environment. In order to create the conditions for long-term growth and improved investor experiences, mutual funds must strike a balance between innovation and trust.

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HOW IS CORPORATE SOCIAL RESPONSIBILITY RELATED TO GREEN MARKETING?

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ABSTRACT

In today's world, both manufacturers and consumers are increasingly mindful of the environmental impact of products. They have shifted their focus toward green or eco-friendly products that do not harm the environment. This concept has gained significant attention in recent times. Green products are designed to be energy-efficient, include organic foods, lead-free paints, recycled paper, and phosphate-free detergents. Indian marketers have also recognized the importance of such products. Given the urgent need to prioritize environmentally friendly solutions, efforts are being made to design green products and raise awareness about them through various promotional campaigns. Initiatives such as environmental protection, the green revolution, sustainable development, and the "go green" movement collectively contribute to safeguarding the planet. This approach includes decisions such as redesigning and rebranding products and their packaging to minimize environmental impact. It has created opportunities for investors to collaborate and introduce eco-friendly product lines, encouraging a shift toward sustainability and promoting green practices. The government has introduced various initiatives to promote green marketing, including mandating that businesses allocate 2% of their average net profits over the previous three years toward Corporate Social Responsibility (CSR) activities. This requirement applies to companies with a net worth exceeding ₹500 crores, a turnover of ₹1,000 crores, or net profits of ₹5 crores. Such measures play a pivotal role in fostering a greener economy by encouraging businesses to invest in sustainable and eco-friendly practices. Corporate Social Responsibility (CSR) and green marketing are interconnected, both focusing on sustainability and ethical business conduct. CSR encourages companies to evaluate their social and environmental effects, prompting the adoption of eco-friendly practices. Green marketing amplifies these actions by promoting environmentally responsible products and services, responding to consumer demand for sustainability. Companies involved in CSR often use green marketing to highlight initiatives like reducing waste, using renewable materials, or cutting emissions. Together, these strategies help businesses build a positive reputation, attract environmentally conscious consumers, and contribute to the preservation of the environment.

***KEYWORDS**: Corporate Social Responsibility (CSR), Sustainability, Eco-friendly, Brand Reputation, Green Marketing.*

Introduction

Green marketing, often referred to as sustainable or environmental marketing, focuses on advertising products or services by highlighting their eco-friendly attributes. It encompasses various approaches, strategies, and practices aimed at promoting sustainability, efficient use of resources, and environmental preservation, while resonating with consumers' commitment to fostering a greener and healthier world.

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The idea of green marketing gained prominence in the late 20th century, driven by rising environmental awareness and growing global issues such as climate change, resource scarcity, and pollution. Companies started implementing eco-conscious marketing approaches to meet the needs of a shifting consumer demographic that valued sustainable and ethical consumption practices.

Green marketing involves several crucial components designed to encourage sustainability and environmentally conscious consumer behavior. A significant aspect is the creation of eco-friendly products and services that reduce environmental harm by incorporating sustainable materials, renewable energy, or biodegradable packaging. Examples of such products include energy-efficient appliances, electric vehicles, organic foods, and reusable packaging options. Another important element is the implementation of sustainable business practices, where companies prioritize reducing their carbon footprint, adopting recycling initiatives, and utilizing renewable energy, water-saving techniques, and ethically sourced materials to demonstrate their dedication to sustainability. Furthermore, green marketing highlights the environmental advantages of products, such as lower energy usage, reduced emissions, or biodegradability, to appeal to environmentally aware consumers. Lastly, educating consumers is an integral part of green marketing, as it seeks to increase awareness about the significance of sustainability and motivate individuals to make environmentally responsible choices.

History of Green Marketing

The history of green marketing dates back to the 1960s and 1970s, when environmental concerns began to rise globally due to issues such as pollution, deforestation, and the depletion of natural resources. The concept gained traction in the 1970s with the publication of works like Rachel Carson's *Silent Spring* (1962), which raised awareness about the dangers of pesticide use, and the first Earth Day in 1970, which galvanized public concern about environmental degradation. In the 1980s, the idea of green marketing started to take shape as businesses began to recognize the growing demand for environmentally friendly products and services. Companies began to market products as "eco-friendly" or "green" to appeal to consumers who were becoming more conscious of environmental issues. By the 1990s, the rise of global environmental movements, along with stricter regulations on pollution and waste, led to an increased focus on sustainability in business practices. Green marketing expanded beyond product labeling to include initiatives like reducing carbon footprints, using renewable energy, and promoting ethical sourcing. In the 2000s and beyond, green marketing became a central component of many corporate strategies as both consumers and governments placed more emphasis on sustainability and corporate responsibility. Today, green marketing is a well-established field, with businesses across industries adopting green practices to meet consumer demand, adhere to regulations, and contribute to global sustainability efforts.

Green Marketing in India

The history of green marketing in India can be traced back to the early 1990s, when environmental concerns started to gain prominence on the global stage. As India's industrialization accelerated, so did the environmental challenges such as pollution, deforestation, and resource depletion. In response, businesses began to recognize the need for eco-friendly products and sustainable practices. The concept of green marketing in India gained momentum in the mid-1990s when Indian companies, particularly in the manufacturing and FMCG (fast-moving consumer goods) sectors, started integrating environmental considerations into their business strategies. This was influenced by growing consumer awareness and pressure from environmental advocacy groups calling for more responsible business practices.

The late 1990s saw a more formal push towards environmental sustainability as Indian industries began adopting green marketing strategies. Companies like Godrej, ITC, and Tata started incorporating eco-friendly products, reducing their environmental footprints, and promoting sustainability through marketing campaigns. During this period, the focus was primarily on eco-labeling and advertising the environmental benefits of products such as energy-efficient appliances, organic food, and recyclable packaging.

In the early 2000s, with the rise of globalization, India began to see a surge in the demand for sustainable products as consumers became more aware of global environmental issues like climate change and resource depletion. This shift in consumer behavior pushed Indian companies to further refine their green marketing strategies, moving beyond just product promotion to include sustainable practices in their operations. Industries such as textiles, automobiles, and construction started adopting green marketing by promoting eco-friendly materials and energy-efficient solutions.

The government of India also played a significant role in fostering green marketing by introducing policies and regulations to promote environmental sustainability. The introduction of the National Action Plan on Climate Change in 2008, and the enforcement of stricter pollution control standards, pushed businesses to adopt cleaner production methods and eco-friendly products. Government initiatives, such as tax incentives for renewable energy and green technologies, also encouraged businesses to integrate sustainability into their operations.

In the 2010s, green marketing in India became more mainstream as several multinational corporations, such as Unilever, PepsiCo, and Coca-Cola, incorporated green marketing principles into their Indian operations. The rise of e-commerce and online platforms also contributed to the spread of green marketing by providing a direct channel for eco-conscious consumers to access and purchase sustainable products. By this time, Indian consumers were increasingly recognizing the importance of environmental preservation, and businesses began to offer products with green certifications, recyclable packaging, and energy-efficient features.

Today, green marketing in India is an integral part of corporate strategy across industries. It is driven by consumer demand for more sustainable products, government regulations, and the growing importance of corporate social responsibility (CSR). Companies like Patanjali, Infosys, and Mahindra have embraced green marketing by focusing on eco-friendly products, renewable energy, and waste reduction programs. However, challenges such as consumer awareness, cost barriers, and greenwashing remain, but the overall trend points toward a future where green marketing is likely to play an even more crucial role in shaping India’s business landscape.

Introduction of CSR

Corporate Social Responsibility (CSR) refers to the responsibility businesses have to address social, environmental, and economic issues through their operations and interactions with stakeholders. It goes beyond profit generation, encouraging companies to consider the broader effects of their actions on society. CSR can take various forms, such as contributing to community development, minimizing environmental impact, promoting fair labor practices, and supporting charitable causes. It demonstrates a company's dedication to making a positive impact on society and acting in ways that benefit not only shareholders but also employees, customers, local communities, and the environment. CSR initiatives might involve funding education, adopting sustainable practices, supporting charity work, or ensuring ethical sourcing of materials. Over time, CSR has shifted from being a voluntary activity to one that is expected by consumers, investors, and governments, with many businesses incorporating it into their core strategies. Ultimately, CSR seeks to align a company's actions with societal values, promoting long-term benefits for both the company and the community.

Corporate Social Responsibility (CSR) refers to the concept where businesses take responsibility for the impact of their actions on society, the environment, and the economy. It involves integrating ethical practices into their core operations and decision-making processes, aiming to contribute positively to the world beyond financial profits. CSR can encompass a wide range of activities, such as reducing environmental footprints, ensuring fair labor practices, supporting community development, and engaging in philanthropy. Over time, CSR has evolved from a voluntary business practice to an essential aspect of modern corporate strategies, driven by consumer demand, government regulations, and the growing recognition that companies must consider the broader social and environmental consequences of their operations. CSR is now seen as a way for businesses to demonstrate accountability, build a positive reputation, and foster long-term relationships with stakeholders, including customers, employees, investors, and local communities. By embracing CSR, businesses aim to create value not only for their shareholders but also for society as a whole, contributing to sustainable development and addressing global challenges.

History of CSR

The concept of Corporate Social Responsibility (CSR) has evolved over several decades, with its roots tracing back to the early 20th century. In the early years, businesses were primarily focused on profit generation, and there was little emphasis on their societal responsibilities. However, during the 1950s and 1960s, scholars and activists began to challenge this narrow view, advocating for businesses to consider their impact on society, the environment, and workers. The term "corporate social responsibility" gained traction in the 1950s, particularly through the work of economist Howard Bowen, who is often referred to as the "father of CSR." In his 1953 book, *Social Responsibilities of the Businessman*, Bowen argued that businesses have an obligation to act in the public interest and contribute to social welfare.

In the 1970s and 1980s, CSR began to gain wider acceptance, driven by growing environmental concerns, the rise of labor movements, and the increasing public awareness of social issues. During this period, companies started to implement charitable initiatives and engage in social causes as part of their business strategies. The 1990s saw CSR expand beyond philanthropy to include a focus on ethical business practices, environmental sustainability, and fair trade. Companies began to realize that their long-term success was tied to their ability to act responsibly and contribute to societal well-being.

The turn of the 21st century marked a significant shift in CSR, with businesses increasingly integrating sustainability into their core strategies. CSR became not only a way to improve a company’s public image but also a tool for creating value, building consumer loyalty, and managing risks. Today, CSR is a widely recognized and expected practice in the business world, with companies being held accountable for their social and environmental impact. Governments, consumers, and investors now demand greater transparency, ethical behavior, and sustainable practices, making CSR an integral part of modern business operations.

CSR in India

The history of Corporate Social Responsibility (CSR) in India has evolved over several decades, deeply influenced by the country’s cultural values, economic development, and social challenges. Traditionally, CSR in India has been closely linked with philanthropy and charitable activities, with a strong emphasis on social welfare, community development, and support for education and healthcare. In the early years of India's independence, several businesses, especially family-owned enterprises, engaged in philanthropic initiatives as part of their social obligations. Companies like the Tatas, Birlas, and Infosys laid the foundation for CSR practices in India through their involvement in community service, education, healthcare, and infrastructure development.

In the 1950s and 1960s, the Indian government began to emphasize the importance of corporate contributions to national development. During this time, India's economy was primarily state-controlled, and public sector enterprises played a significant role in economic activities. These enterprises were expected to contribute to social welfare through various programs. However, CSR remained relatively informal and was largely based on voluntary actions by businesses.

The 1990s marked a significant shift in CSR practices in India due to economic liberalization. As India opened up its economy and integrated more with the global market, Indian companies began to focus more on business performance, competition, and profitability. The concept of CSR began to evolve from mere philanthropy to a more strategic approach that integrated environmental, social, and governance (ESG) factors into business operations. Companies started to adopt sustainable practices, such as reducing pollution, promoting renewable energy, and ensuring fair labor practices. However, CSR was still voluntary, and there were no clear regulations or guidelines governing it.

The major turning point came in 2013, when India became the first country in the world to mandate CSR. The Companies Act of 2013 introduced a provision that made it compulsory for companies meeting certain criteria to spend at least 2% of their average net profits from the previous three years on CSR activities. This move formalized CSR in India and set a legal framework for companies to follow. The law also specified areas where CSR activities could be undertaken, such as promoting education, ensuring environmental sustainability, healthcare, rural development, and supporting gender equality.

Since the introduction of the Companies Act, CSR has gained significant traction in India. Many Indian companies, including the Tata Group, Reliance Industries, and Infosys, have expanded their CSR efforts, making long-term commitments to sustainability and social causes. Companies are increasingly aligning their CSR initiatives with the United Nations Sustainable Development Goals (SDGs), focusing on projects related to clean energy, water conservation, health, education, and poverty alleviation.

In recent years, CSR in India has evolved further, with businesses recognizing that CSR can drive not only social impact but also long-term business value. Companies are focusing on creating shared value, engaging with communities in a more meaningful way, and involving employees in CSR activities. Additionally, there is a growing awareness of the need for transparency and accountability in CSR reporting, with businesses increasingly adopting international standards for measuring the impact of their CSR initiatives.

Today, CSR in India is seen as an integral part of corporate strategy, driven by both legal obligations and a genuine commitment to societal well-being. While challenges remain, such as ensuring that CSR activities are impactful and addressing concerns about greenwashing, CSR continues to grow in importance as both an ethical practice and a strategic tool for business success in India. Corporate Social Responsibility (CSR) in India is governed by Section 135 of the Companies Act, 2013, along with the Companies (Corporate Social Responsibility Policy) Rules, 2014. The legislation mandates that companies meeting specific thresholds—such as a net worth of ₹500 crore or more, a turnover of ₹1,000 crore or more, or a net profit of ₹5 crore or more in a given financial year—must allocate at least 2% of their average net profits over the preceding three years to CSR activities. Companies are required to establish a CSR committee comprising members of the Board of Directors, which is responsible for formulating and recommending a CSR policy, identifying relevant projects, and ensuring implementation and monitoring. Permissible CSR activities are outlined in Schedule VII of the Act and include areas such as eradicating hunger, promoting education, ensuring environmental sustainability, and contributing to national heritage. Importantly, CSR funds cannot be used for activities undertaken in the normal course of business or for projects benefiting only the company's employees or their families. Moreover, companies must disclose their CSR expenditures and initiatives in their annual reports, ensuring transparency and accountability. This regulatory framework aims to foster a culture of social responsibility among businesses, encouraging them to contribute actively to sustainable development and societal well-being.

Review of Literature

The relationship between Corporate Social Responsibility (CSR) and green marketing has been extensively explored in academic and business literature, reflecting their growing significance in fostering sustainable development. CSR, as a concept, revolves around a company’s commitment to social, ethical, and environmental responsibilities beyond its economic and legal obligations. Green marketing, on the other hand, involves promoting products or services that are environmentally friendly, aligning with the principles of sustainability and addressing the demands of environmentally conscious consumers. The integration of CSR into green marketing strategies has become a key focus area for researchers and practitioners alike.

Early studies, such as those by Kotler and Lee (2005), emphasized that CSR activities could significantly enhance a company's public image and customer loyalty when combined with green marketing initiatives. They argued that integrating CSR practices with environmental marketing campaigns helps organizations align their business objectives with societal and environmental goals, thereby gaining a competitive advantage. Similarly, Peattie (1999) highlighted that green marketing, supported by a robust CSR framework, creates a strong value proposition for consumers by addressing their environmental concerns while demonstrating the company’s ethical responsibility.

Researchers like Menon and Menon (1997) introduced the concept of "enviropreneurial marketing," which connects CSR and green marketing by advocating for innovative and eco-friendly business strategies. Their work underscored that CSR-driven green marketing fosters not only consumer trust but also corporate sustainability by addressing the ecological impact of business operations. Furthermore, studies by Bhattacharya and Sen (2004) revealed that consumers are more likely to support brands that demonstrate a genuine commitment to CSR initiatives, especially those linked to environmental conservation, which is a core aspect of green marketing.

Recent literature has delved deeper into the synergies between CSR and green marketing. For instance, studies by D’Souza et al. (2020) revealed that companies adopting CSR as part of their green marketing strategies witness higher consumer engagement, especially among younger, environmentally conscious demographics. The research highlighted that transparency in communicating CSR initiatives, such as sustainable sourcing or carbon-neutral production processes, enhances brand credibility and drives purchase decisions. Moreover, Kumar et al. (2022) emphasized that CSR and green marketing, when integrated effectively, not only fulfill legal and ethical obligations but also position organizations as leaders in sustainability, attracting investments and stakeholder trust.

Another stream of research has focused on the challenges and criticisms of CSR-driven green marketing. Critics like Laufer (2003) cautioned against "greenwashing," where companies exaggerate or falsely claim environmental benefits to enhance their image without substantive action. Such practices can backfire, leading to reputational damage and consumer distrust. This underscores the importance of authenticity and measurable outcomes in CSR-related green marketing initiatives.

The role of technology and innovation in strengthening the CSR-green marketing nexus has also gained attention. Studies by Chen et al. (2019) demonstrated how advancements in digital marketing and big data analytics enable companies to design targeted green marketing campaigns based on consumer preferences and feedback. Integrating CSR principles into these campaigns ensures that organizations remain accountable and transparent about their environmental impact.

In summary, the literature on the connection between CSR and green marketing underscores how these two concepts work together to promote sustainable business practices and enhance customer loyalty. CSR serves as the ethical backbone and strategic guide, while green marketing functions as a means to convey these principles to stakeholders. Combined, they tackle global environmental issues and support the development of responsible and resilient organizations. Future studies could delve deeper into the dynamic interaction between CSR and green marketing, particularly in the context of new trends such as circular economy initiatives, climate resilience strategies, and advancements in technology.

Objectives of the Study

- To analyze the challenges and limitations in implementing CSR-related green marketing practices.
- To assess how businesses combine CSR initiatives and green marketing efforts to align with environmental and social goals.
- To assess how CSR contributes to the development of creative and impactful green marketing initiatives.

These objectives can serve as a framework for research or analysis, offering a comprehensive view of the intersection between CSR and green marketing.

Research Methodology

This study will follow a descriptive research design, aimed at exploring the relationship between Corporate Social Responsibility (CSR) and green marketing.

Descriptive Research is a type of research methodology that aims to describe characteristics, behaviors, or phenomena without manipulating or controlling the variables. It focuses on providing an accurate portrayal or account of a subject, often through observation, surveys, or case studies. Descriptive research answers "what" questions, such as "What are the CSR practices of companies in the petroleum industry?" or "What is the relationship between green marketing and CSR?" The key purpose is to describe a situation or problem as it exists, offering a detailed picture without drawing causal conclusions.

This research methodology provides a comprehensive plan for conducting a study on CSR and green marketing, incorporating both theoretical and practical elements to explore their relationship and impact.

Green Marketing

The principles of green marketing focus on promoting products and services in a way that aligns with environmental sustainability and ethical practices. One core principle is the commitment to offering products that have a minimal environmental impact throughout their lifecycle, from production to disposal. This includes using sustainable materials, reducing waste, and ensuring that products are recyclable or biodegradable. Another key principle is transparency, where companies are open about the environmental attributes of their products, ensuring that consumers are well-informed about their eco-friendly qualities. Additionally, green marketing encourages businesses to adopt environmentally responsible practices, such as reducing their carbon footprint, conserving natural resources, and supporting ethical sourcing. A crucial principle is also fostering consumer education, helping individuals understand the benefits of sustainable choices and the role they play in protecting the environment. Ultimately, green marketing principles aim to create a balance between business success and environmental stewardship, promoting both profit and planet preservation.

Green marketing provides numerous advantages for businesses, consumers, and the environment. For businesses, it helps improve brand image and appeal to a growing base of environmentally conscious consumers who prioritize sustainability in their buying choices. By adopting green practices, companies can lower operational expenses, such as energy costs and waste management, resulting in long-term financial benefits. Furthermore, green marketing allows businesses to stand out in a competitive market by positioning themselves as pioneers in sustainability. For consumers, it offers access to products and services that support a healthier planet, giving them confidence that their purchases align with their ethical values. From an environmental perspective, green marketing helps reduce waste, energy usage, and carbon emissions, aiding in the conservation of natural resources and the reduction of pollution. Overall, green marketing promotes sustainable consumption and production, benefiting businesses, consumers, and the planet.

Challenges of Green Marketing and CSR Implementation in India

Green marketing in India encounters several challenges that hinder its broader adoption and success. A primary issue is the high production cost of eco-friendly products, which often results in them being more expensive than traditional alternatives. This price gap can discourage consumers, especially in cost-sensitive markets, from choosing sustainable options. Another challenge is the limited awareness and understanding among both consumers and businesses about the advantages of green products and sustainable practices. Many consumers are unaware of the environmental impact of their purchases, while businesses may lack the knowledge or resources to implement green marketing strategies. Additionally, the absence of uniform regulations and certifications for green products in India leads to confusion and skepticism, as some companies may falsely market their products as environmentally friendly. The scarcity of eco-friendly materials and technologies, coupled with inadequate recycling and waste management infrastructure, also restricts the expansion of green marketing. Lastly, cultural and economic factors, such as a preference for conventional products and a focus on short-term financial gains, further impede the widespread adoption of green marketing in India.

Implementing Corporate Social Responsibility (CSR) in India faces several challenges, despite the growing recognition of its importance in the corporate sector. One of the primary challenges is the lack of clear guidelines and standardization in CSR activities. While the Companies Act of 2013 mandates that certain companies allocate funds for CSR, there is still ambiguity in how these funds should be spent and how companies should measure the impact of their initiatives. This lack of standardized reporting can lead to inconsistent practices and make it difficult for stakeholders to assess the effectiveness of CSR efforts.

Another challenge is the limited understanding of CSR among some companies, especially smaller businesses and those in the public sector. While large corporations may have dedicated CSR departments, smaller businesses often view CSR as a mere obligation rather than a strategic tool for long-term growth. This lack of awareness can result in poorly planned CSR initiatives that do not align with the company's core business objectives or fail to deliver meaningful social impact.

Additionally, there is often a gap between the CSR projects implemented and the actual needs of the communities they aim to serve. In many cases, companies may focus on projects that provide short-term benefits or are more visible, rather than addressing long-term social challenges or the root causes of problems. This can lead to CSR efforts being seen as superficial or disconnected from the community's real needs.

Resource constraints, both in terms of finances and human capital, also pose a significant challenge. While large corporations may have the resources to invest in comprehensive CSR programs, smaller firms may struggle to allocate sufficient funds or personnel for effective CSR implementation. Furthermore, in some cases, companies may divert funds meant for CSR into other areas, undermining the intended social impact.

Another challenge is the issue of transparency and accountability. Companies often face criticism for their CSR activities being used as a marketing tool or for "greenwashing" – exaggerating their contributions to social causes to improve their public image. Without clear, transparent reporting and third-party assessments, it becomes difficult to hold companies accountable for the true impact of their CSR activities.

Finally, the regulatory and governance framework surrounding CSR in India, although improving, still faces challenges. The enforcement of CSR rules is inconsistent, and there are gaps in monitoring and auditing CSR activities. This lack of effective oversight means that some companies may not fully comply with the CSR requirements or may mismanage the allocated funds, reducing the potential social impact.

Overall, while CSR in India has made significant strides, these challenges need to be addressed to ensure that CSR efforts are effective, impactful, and aligned with the broader goals of sustainable development.

Future of Green Marketing and CSR

The future of green marketing looks bright as environmental awareness increases and sustainability becomes more crucial to both consumers and businesses. With climate change and resource depletion continuing to be major concerns, consumers are expected to seek out more eco-friendly products and services, driving companies to innovate and adopt greener practices. Technological advancements in areas like renewable energy, sustainable materials, and eco-efficient production methods will allow businesses to reduce their environmental footprint while staying profitable. Additionally, tougher environmental regulations and government incentives will likely encourage companies to embrace sustainable practices and promote their green efforts. The growth of the circular economy, which focuses on reusing and recycling products, will also significantly influence the future of green marketing. Moreover, businesses that are transparent and honest in their environmental claims will earn consumer trust, as people become more cautious about greenwashing. In conclusion, as the global push for sustainability strengthens, green marketing is set to become a core component of business strategies, offering long-term advantages for both the environment and the economy.

The future of green marketing in India looks promising as environmental awareness continues to rise and sustainability becomes increasingly important to both consumers and businesses. With the growing concerns about climate change, pollution, and resource depletion, Indian consumers are expected to increasingly seek eco-friendly products and services, prompting companies to adopt more sustainable practices. Advances in technology, such as renewable energy, waste management, and sustainable materials, will help businesses reduce their environmental impact while staying competitive. Government policies and incentives supporting green initiatives are likely to encourage businesses to embrace sustainability and highlight their environmentally friendly products. As the circular economy concept, focused on reuse and recycling, gains popularity in India, green marketing will become a more integral part of business strategies. However, for green marketing to reach its full potential, businesses must address challenges such as high costs, low consumer awareness, and the absence of standardized eco-certifications. Once these issues are overcome, green marketing in India is set to thrive, promoting both environmental sustainability and economic growth.

The future of Corporate Social Responsibility (CSR) in India looks promising, with the increasing emphasis on sustainability, social impact, and ethical business practices shaping its evolution. As India continues to face pressing social and environmental challenges, such as poverty, inequality, pollution, and climate change, CSR is expected to play a critical role in addressing these issues. Companies in India are likely to place greater focus on long-term, sustainable solutions rather than short-term charitable initiatives, with an emphasis on creating shared value for both businesses and society.

In the coming years, CSR in India will likely see a stronger alignment with the United Nations Sustainable Development Goals (SDGs), with businesses focusing on areas such as clean energy, water conservation, education, healthcare, gender equality, and rural development. This shift will not only contribute to societal well-being but also open new business opportunities, as companies recognize the potential for innovation in addressing social challenges.

Another key aspect of the future of CSR in India is the growing importance of transparency and accountability. With increasing consumer awareness and demand for ethical business practices, businesses will be under pressure to demonstrate the tangible impact of their CSR activities. Companies are expected to adopt more robust CSR reporting frameworks, using standardized metrics to measure and communicate their contributions to social and environmental causes.

The role of technology in CSR is also set to increase. Businesses will likely use digital tools, data analytics, and innovative technologies to improve the efficiency and reach of their CSR initiatives, especially in sectors like education, healthcare, and environmental sustainability. Technology will also enable companies to better engage with communities, track the progress of projects, and ensure greater accountability. Additionally, the Indian government is expected to continue its support for CSR by creating an enabling regulatory environment, providing incentives for businesses that go above and beyond legal requirements, and encouraging private-public partnerships for social development. This support will further drive corporate participation in addressing the country's developmental challenges.

Overall, CSR in India is poised to evolve from a compliance-driven activity to a core business strategy that contributes to sustainable development and drives long-term value creation. As businesses increasingly embrace the role of responsible corporate citizens, CSR will become an integral part of India's journey towards a more inclusive, equitable, and sustainable future.

Relationship between CSR and Green Marketing

Corporate Social Responsibility (CSR) and green marketing are closely intertwined, as both prioritize promoting responsible, sustainable, and eco-friendly business practices. CSR involves a company's dedication to making a positive impact on society and the environment by addressing social, economic, and environmental issues within its operations and relationships with stakeholders. It includes a wide range of activities, such as ethical labor practices, community engagement, environmental sustainability, and transparent governance. On the other hand, green marketing focuses on promoting products, services, or practices that offer environmental benefits, aiming to appeal to eco-conscious consumers by showcasing their sustainability and ecological advantages.

The connection between CSR and green marketing stems from their mutual goal of advancing environmental sustainability. Businesses that engage in CSR often use green marketing strategies to communicate their eco-friendly initiatives to the public, positioning themselves as responsible and forward-thinking. By integrating CSR into green marketing, companies can demonstrate their commitment to reducing environmental impact through initiatives like using renewable energy, minimizing waste, offering eco-friendly packaging, and supporting conservation efforts.

When CSR principles are woven into green marketing campaigns, it creates a mutually beneficial effect for both the company and society. For example, a company that adopts sustainable production methods, like using recycled materials, can incorporate these practices into their green marketing to highlight the environmental benefits of their products. This not only boosts the company's brand image but also builds customer trust and loyalty. Today's consumers are increasingly looking for brands that reflect their values, particularly those focused on environmental protection and social responsibility. As a result, CSR-driven green marketing can attract a loyal customer base that values sustainable and ethical business practices.

Additionally, CSR and green marketing can have a positive impact on a company's financial success. As more consumers become environmentally aware, they are more likely to support brands that genuinely commit to sustainability. Green marketing campaigns aligned with CSR initiatives can also help businesses comply with environmental regulations and sustainability standards. By prioritizing CSR in their green marketing efforts, companies can contribute to a cleaner, more sustainable world while gaining a competitive edge in a marketplace that increasingly values environmental responsibility.

However, the success of CSR-driven green marketing hinges on authenticity. Consumers are becoming more skeptical of companies that engage in "greenwashing," or making misleading claims about their environmental efforts. Therefore, for CSR-related green marketing to be effective, businesses must ensure that their claims are backed by real, measurable actions. Transparency and accountability in reporting CSR activities—such as publishing sustainability reports or participating in third-party environmental certifications—are essential to building consumer trust.

Conclusion

In conclusion, CSR and green marketing are closely connected, with CSR providing the ethical foundation for green marketing strategies. Together, they form a powerful framework for businesses to demonstrate their commitment to sustainability while attracting eco-conscious consumers. By genuinely adopting CSR practices and aligning them with green marketing efforts, companies can strengthen relationships with customers, enhance their reputation, and contribute to a more sustainable future.

Corporate Social Responsibility (CSR) and green marketing are inherently connected, as both focus on ethical practices, sustainability, and environmental responsibility. CSR represents a company's dedication to addressing social, environmental, and economic challenges through its operations and stakeholder engagement. Conversely, green marketing highlights the environmental advantages of products or services, targeting consumers who value sustainability. When companies incorporate CSR principles into their green marketing efforts, they showcase their commitment to protecting the environment, strengthening their brand reputation, and building consumer trust. For instance, a business might reduce its carbon emissions by using renewable energy and then promote this initiative as part of its green marketing strategy. This synergy not only ensures compliance with regulations and societal expectations but also creates a competitive advantage by appealing to environmentally conscious customers. Additionally, CSR-driven green marketing fosters lasting customer loyalty, as modern consumers increasingly prefer brands that reflect their values of social responsibility and environmental consciousness. Essentially, CSR establishes the guiding principles, while green marketing communicates and amplifies these values, resulting in a sustainable business model that balances growth with stakeholder satisfaction.

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MERGING VALUES: ANALYZING THE IMPACT OF BANK MERGERS ON CSR INITIATIVES

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ABSTRACT

Bank mergers are transformative events that not only influence financial performance but also impact corporate social responsibility (CSR) initiatives. This study explores the evolving dynamics of CSR in the context of bank mergers, focusing on how mergers reshape the strategies, scope, and execution of CSR activities. For this study Punjab national bank merger with union bank of India and Oriental bank of commerce is taken as sample. By examining sample and data from bank mergers, the research identifies trends in CSR prioritization, resource allocation, and alignment with stakeholder expectations. The findings reveal both opportunities and challenges, such as potential synergy in CSR objectives versus dilution of focus on community-centric activities. The paper emphasizes the need for integrating CSR into the strategic framework of merging entities to ensure sustainable growth and societal impact. This study contributes to understanding the intersection of corporate consolidation and social responsibility, offering insights for policymakers, banking institutions, and stakeholders.

KEYWORDS*: Corporate Social Responsibility (CSR), Bank Merger, CSR Activities, Training and Livelihood, Education, Sports.*

Introduction

In the dynamic landscape of modern banking, mergers and acquisitions (M&A) serve as powerful tools for enhancing institutional growth, market reach, and operational efficiency. Globally, the banking sector has witnessed waves of consolidation, driven by the pursuit of financial stability, increased profitability, and enhanced competitiveness. In India, the phenomenon has been particularly prominent in the public sector banking domain, where mergers are often orchestrated by the government to strengthen weak entities and streamline operations. Among the most notable examples of such consolidations is the merger of Punjab National Bank (PNB) with Oriental Bank of Commerce (OBC) and United Bank of India (UBI) in 2020, creating one of the largest banking entities in the country. After merger Punjab National bank becomes the second largest Indian public Sector bank. While the financial and operational outcomes of such mergers have been extensively analyzed, their implications on non-financial aspects, particularly Corporate Social Responsibility (CSR), remain underexplored.

CSR has become an integral aspect of corporate governance and sustainability in recent decades, especially in the banking sector. Beyond its regulatory mandate under Section 135 of the Indian Companies Act, 2013, CSR reflects a corporation's commitment to societal welfare, environmental stewardship, and inclusive development. For banks, CSR initiatives are not merely altruistic endeavors; they play a critical role in building trust, fostering financial inclusion, and supporting community development. However, mergers often disrupt the established CSR strategies of participating entities, necessitating a re-evaluation of priorities, resource allocation, and project execution. These disruptions pose significant challenges, as well as opportunities, for merged entities to redefine their CSR approach.

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The merger of Punjab National Bank with OBC and UBI provides a compelling case study to investigate the impact of bank mergers on CSR expenditure. As one of India's oldest and most established public sector banks, PNB has a long history of undertaking significant CSR initiatives. The merger, however, brought together three institutions with distinct organizational cultures, operational strategies, and stakeholder expectations. This convergence necessitated the integration of not only financial systems and human resources but also CSR frameworks. Analyzing how this merger influenced CSR expenditure—its allocation, focus areas, and overall effectiveness—can offer valuable insights into the broader implications of bank consolidations on sustainability and societal commitments.

The Importance of CSR in the Banking Sector

The banking industry occupies a unique position in the economy, serving as an intermediary that channels resources towards productive sectors while fostering financial inclusion and economic development. Banks are also key stakeholders in promoting sustainability and social equity, given their influence on industries and communities through lending and investment decisions. In the Indian context, CSR has become a regulatory obligation for banks, requiring them to allocate their profits to CSR activities. These activities often focus on areas such as education, healthcare, rural development, environmental conservation, and financial literacy.

CSR initiatives by banks not only enhance their brand reputation but also contribute to economic stability by addressing societal challenges. For instance, investments in rural development programs improve agricultural productivity, while financial literacy initiatives empower underserved populations to participate in the formal financial system. However, the realization of these benefits depends significantly on the stability and consistency of CSR policies and expenditures, which can be disrupted during mergers.

Bank Mergers and CSR: A Complex Relationship

Bank mergers, while aimed at achieving financial and operational synergies, often lead to significant changes in corporate policies, including CSR strategies. The integration of merged entities involves aligning their priorities, systems, and stakeholder expectations, which can temporarily shift focus away from CSR. Moreover, differences in pre-merger CSR commitments, organizational cultures, and resource allocation strategies can complicate the harmonization process. For example, one merging bank may prioritize education and skill development, while another may focus on healthcare and environmental projects. Reconciling these differences to create a unified CSR framework requires careful planning and negotiation.

The literature on M&A in the banking sector highlights several potential outcomes for CSR post-merger. Some studies suggest that mergers lead to increased CSR expenditure due to the combined resources of the merged entity, while others argue that the initial focus on financial integration can lead to a decline in CSR activities. These contradictory findings underscore the need for empirical studies that examine specific cases to identify patterns and determinants of CSR performance post-merger.

Why Punjab National Bank?

Punjab National Bank, established in 1894, is one of India's oldest and most trusted financial institutions. Its merger with OBC and UBI in 2020 was part of the Indian government's broader agenda to consolidate public sector banks and create larger, more resilient institutions. This merger was significant not only because of the scale of the combined entity but also due to its potential implications for CSR. Each of the three banks had a distinct history of CSR activities, with varied focus areas and levels of expenditure. The integration of these diverse approaches presented both challenges and opportunities for redefining CSR strategies.

Analyzing the impact of this merger on CSR expenditure is particularly relevant given the regulatory and societal expectations for public sector banks in India. As government-owned institutions, these banks are expected to lead by example in fulfilling their CSR obligations. Any disruption or enhancement in their CSR performance can have broader implications for the banking sector's role in promoting sustainability and social welfare.

Focus Areas of Punjab National Bank

- Farmer's training centers (FTC)/ Financial Literacy Centers
- Rural Self Employment Training Institute

- PNB Ladli (Girls education)
- PNB Kisan Balak Siksha protsahan
- PNB Vikas (adopting village)
- Sports etc.

Review of Literature

Kabir and chowdhury (2023), The study on corporate social responsibility (CSR) in Bangladesh highlights a growing trend in CSR activities within the banking sector, despite the nation's historically low social trust and limited corporate philanthropy. The relationship between CSR and corporate financial performance (CFP) remains debated, with no clear consensus in existing research. While CSR is often revered from an emotional perspective, its financial benefits are rarely critically analyzed. This study aims to address this gap by examining 30 listed banks in Bangladesh from 2006 to 2018, employing advanced methodology, including Panel Vector Autoregression, to explore the bidirectional causality between CSR and financial returns. The findings indicate that while better financial performance leads to increased CSR expenditure, CSR spending does not necessarily improve financial performance. The study also identifies key determinants of CSR, such as net income, total deposits, return on assets, and prior CSR expenditure, all of which have a positive relationship with CSR, while firm age negatively affects CSR spending.

Rajul Dutt and Himani Grewal (2018), The research highlights the significant role of the State Bank of India (SBI) in driving social impact through its CSR initiatives, particularly in healthcare, skill development, and livelihood creation. While SBI has made notable investments in these areas, especially skill development, it is suggested that the bank should broaden its focus to include other sectors. The study also points out that while media coverage of CSR activities is high, the actual implementation of these initiatives needs improvement, and recommends that SBI's CSR committee better align its efforts with the broader societal needs to promote overall national development.

Pooja Rani and MS khan (2015), The study highlights that Indian banks prioritize CSR activities in rural development, women empowerment, and education, with significant contributions to vocational training, microfinance, and educational welfare. However, banks show limited focus on customer and employee welfare, as many employees view these as business activities rather than CSR. Key challenges to CSR implementation include limited employee awareness and knowledge, while the main benefits include improved stakeholder relationships and enhanced corporate reputation. Ethical and moral considerations drive banks' involvement in CSR activities.

Anjali Kulkarni (2014), The study emphasizes the importance of Corporate Social Responsibility (CSR) for businesses, especially banks, which play a significant role in the financial sector. It suggests that banks should be mindful of the socio-economic impact of their products and services on society and the environment. The Reserve Bank of India has issued guidelines for banks to adopt CSR policies that promote sustainable development and non-financial reporting. The chapter analyze CSR activities of 19 public and private sector banks over three financial years, focusing on the social issues addressed, strategies employed, staff involvement, and the sustainability of these initiatives. It will also review CSR, social development, and non-financial reporting by banks.

Eliza Sharma and M. Mani (2013), The analysis reveals that while Indian banks are making efforts in CSR, many fall short of regulatory requirements such as priority sector lending and financial literacy programs. Public sector banks lead in CSR contributions, while private and foreign banks lag behind. Top-performing banks like ICICI, HDFC, and SBI in profitability are not leaders in CSR activities. The study highlights the need for banks to improve CSR efforts, particularly in women welfare and education, and for policymakers to evaluate banking performance beyond financial metrics. However, the study is limited by its sample size and timeframe, suggesting the need for further research on the relationship between CSR and financial performance.

Sarita Moharana (2013),The researcher reveals that the effectiveness of CSR initiatives in Indian banks remains unsatisfactory due to a lack of coordination among banks, government, and NGOs. Banks need structured CSR policies, prioritized activities, dedicated funding, and regular monitoring and reporting to their boards. While CSR is often used as a marketing tool, better awareness and training for managers on social issues are required. The changing perspective of Indian businesses toward CSR reflects growing international competition. Suggested measures include increased government involvement, development of CSR consultancy, and enhanced media engagement to strengthen CSR efforts.

Manisha Saxena and A S Kohli (2012), The paper explores whether integrating CSR from the start enhances organizational sustainability. It finds weak support for a direct link between CSR and financial performance, challenging previous studies that suggest a positive correlation. The study highlights that while CSR efforts are actively reported, their impact on financial outcomes may be limited if not closely aligned with core business operations.

S.K. Chaudhury, S.K. Das and P.K. Sahoo (2012), The study reveals that, The 21st century demands mandatory implementation of CSR, requiring coordination between corporates, the government, and NGOs to align business practices with societal needs. In India, CSR efforts remain limited due to a lack of structured policies and accountability. It is recommended that corporates allocate a specific percentage of net profit towards CSR, with mandatory annual reporting based on regulatory guidelines emphasizing stakeholder care, ethical practices, and inclusive growth. Indian banking companies focus on education, rural development, and socio-economic support for vulnerable groups, but need to establish structured CSR policies, prioritize activities, allocate dedicated funds, and ensure regular monitoring and reporting for impactful social spending.

Research Significance

This study seeks to address a critical gap in the literature by examining how bank mergers influence CSR expenditure and strategies, using the PNB merger as a case study. By employing a panel data analysis, the research will quantify changes in CSR spending patterns before and after the merger, identify key determinants of these changes, and evaluate the implications for stakeholders. The findings will contribute to the broader discourse on the intersection of corporate restructuring and sustainability, offering practical insights for policymakers, banking executives, and CSR practitioners.

In a rapidly evolving financial landscape, understanding the relationship between mergers and CSR is essential for ensuring that economic growth is aligned with social and environmental priorities. This research aims to provide actionable recommendations for enhancing the effectiveness and resilience of CSR strategies in the context of bank consolidations, thereby contributing to the broader goal of sustainable developmen

Research Objectives

- To study the CSR practices of Punjab National Bank.
- To assess the trends in CSR expenditure before and after mergers in selected sample.
- To evaluate the alignment of CSR expenditure over various activities are being carried by Punjab national bank.
- To evaluate the changes in CSR focus areas Post Merger.

Research Methodology

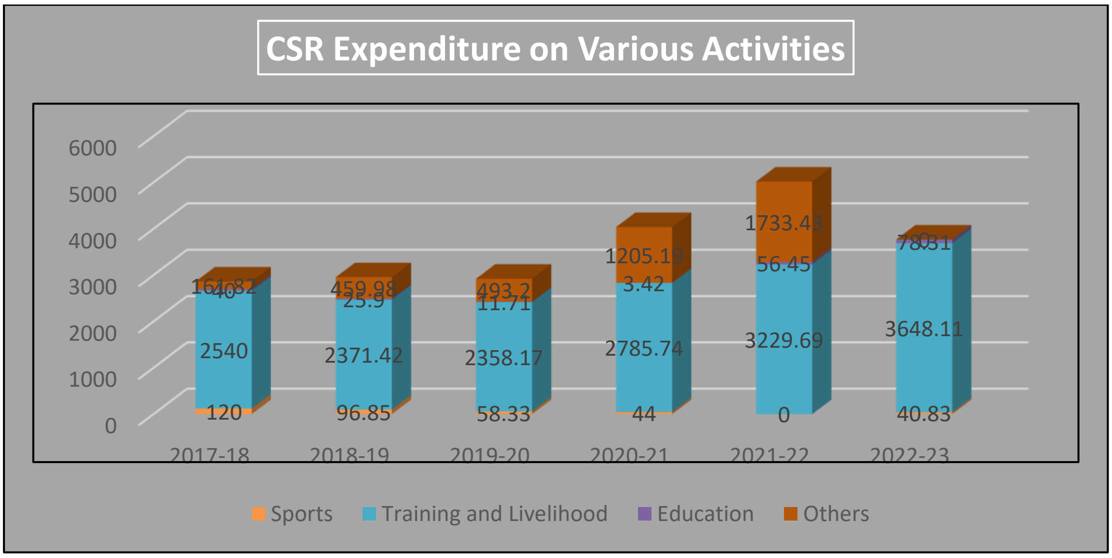
- **Sample Unit:** In 2020 Finance minister Nirmala sitaraman announced the Mega merger in which 10 public sector Banks merged into four. In that merger Union bank of India (UBI) and Oriental bank of Commerce (OBC) (amalgamating banks) merged with Punjab national bank (Anchor bank) and after this merger Punjab National Bank became the second largest Indian PSB after state bank of India. For the current study Punjab National Bank is selected as sample.
- **Study Period:** 6 years from 2018 to 2023 i.e. Financial Year 2017-18 to 2022-23. Three years (2017-18 to 2019-20) before the merger and three years (2020-21 to 2022-23) post-merger.
- **Data Source**: For present study Secondary data has been used collected from the annual report, business Responsibility and sustainability report, corporate social responsibility report, official website of respective bank, online directories, journals, related literature etc.
- **Data Analysis Tool:** Gathered data analysed by statistical tools like percentage, average, trend analysis. Tables, graphs and charts used for effective presentation and better understanding of this study.

Data Analysis and Findings

CSR Expenditure by Punjab National Bank and Trend Analysis

CSR Expenditure and Growth Rate					
Pre-Merger			Post-Merger		
Year	Expenditure (in lacs)	Growth Rate	Year	Expenditure (in lacs)	Growth Rate
2017-18	2861.82	-	2020-21	4038.35	38.23%
2018-19	2954.15	3.23%	2021-22	5019.57	24.30%
2019-20	2921.41	-1.11%	2022-23	3767.25	-24.95%
Average	2912.46		Average	4275.06	

Table 1



Graph 1

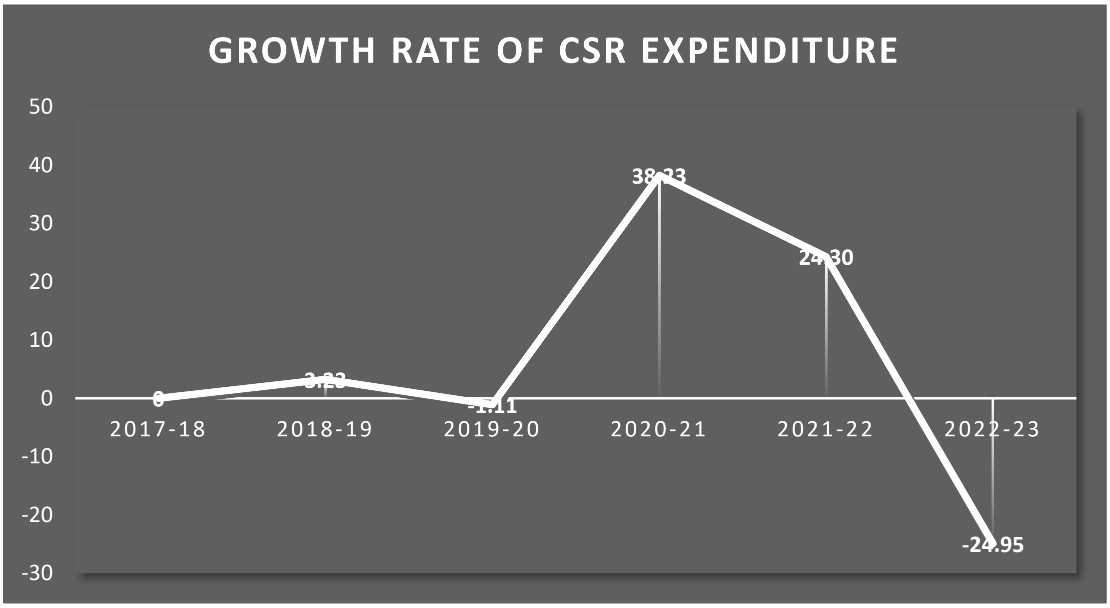


Chart 1

Interpretation

CSR initiatives aim to foster sustainable and inclusive growth by contributing to societal welfare through investments in education, healthcare, environmental conservation, and community development. The data provided offers a comprehensive overview of PNB's CSR expenditure and growth trends over two distinct periods: pre-merger (2017-2020) and post-merger (2020-2023). This analysis explores the patterns, contextual factors, and potential implications for the bank's CSR strategy.

From the above table 1 and graph PNB bank's CSR expenditure constantly increased. The pre merger period shows steady CSR expenditure, with average spending of Rs. 2912.46 lakhs annually. From the above trend analysis, Year-on-year changes in expenditure were relatively minor. The data reflects a consistent commitment to CSR activities, albeit with modest growth. The growth rate in CSR spending improved in 2018-19 (+3.23%) but declined slightly in 2019-20 (-1.11%).

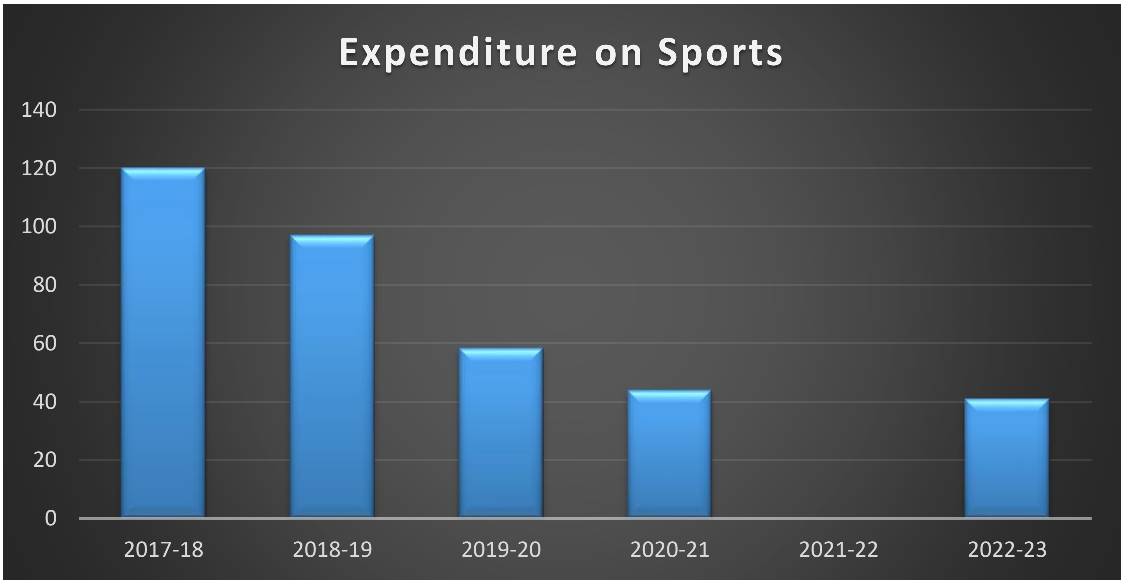
Post-merger, PNB's average CSR expenditure increased significantly to ₹4275.06 lakhs annually, reflecting a notable 46.7% rise compared to the pre-merger average. This sharp increase shows a heightened focus on CSR initiatives following the merger. The merger of PNB with Oriental Bank of Commerce and United Bank of India in 2020 expanded its operations, customer base, and financial resources, enabling higher CSR spending. Growth rate for the year 2020-21, first year after merger, peaked at 38.23%, marking a strong post-merger commitment to CSR. In 2021-22 growth continued at 24.03% but in 2022-23 the growth rate declined to -24.95% which is not a good indicator.

Average CSR expenditure following the merger (Rs. 4275.06 Lakhs) is more than the pre merger average (Rs. 2912.46 Lakhs). The merger have positively influenced PNB's CSR capacity and ambition. Pre-merger growth rates were relatively stable, with minor fluctuations. Post-merger growth rates showed greater volatility, reflecting both enthusiasm and challenges in scaling up CSR initiatives.

CSR Expenditure by Punjab National Bank on Sports

Table 2

CSR Expenditure on Sports			
Pre -Merger		Post -Merger	
Year	Expenditure (in lacs)	Year	Expenditure (in lacs)
2017-18	120	2020-21	44
2018-19	96.85	2021-22	0
2019-20	58.33	2022-23	40.83
Average	91.73	Average	28.28



Graph 2

Interpretation

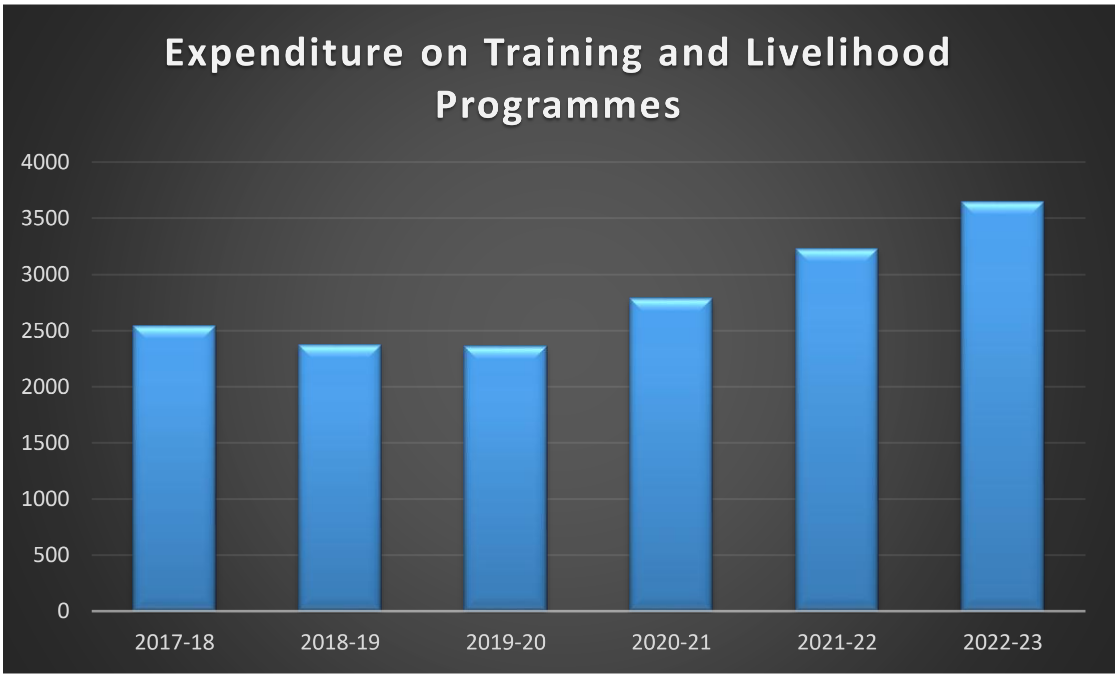
The data on CSR expenditure by Punjab National Bank (PNB) on sports reveals a significant decline in allocations post-merger compared to pre-merger levels. During the pre-merger period (2017-2020), PNB spent an average of ₹91.73 lakhs annually on sports-related CSR activities, with the highest expenditure recorded in 2017-18 at ₹120 lakhs. This reflects a consistent commitment to promoting sports as part of its CSR agenda, aligning with national priorities of fostering sports culture and supporting athletic talent.

However, in the post-merger period (2020-2023), the average annual expenditure on sports dropped sharply to ₹28.28 lakhs, marking a decline of over 69%. In 2020-21, PNB allocated ₹44 lakhs for sports, but this fell to zero in 2021-22 and slightly recovered to ₹40.83 lakhs in 2022-23. The steep reduction in spending post-merger may be attributed to a strategic shift in CSR priorities, focusing more on other critical areas.

CSR Expenditure by Punjab National Bank on Training and Livelihood Programmes

Table3

CSR Expenditure on Training and livelihood			
Pre-Merger		**Post-Merger**	
Year	**Expenditure (in lacs)**	**Year**	**Expenditure (in lacs)**
2017-18	2540	2020-21	2785.74
2018-19	2371.42	2021-22	3229.69
2019-20	2358.17	2022-23	3648.11
Average	2423.20	Average	3221.18



Graph 3

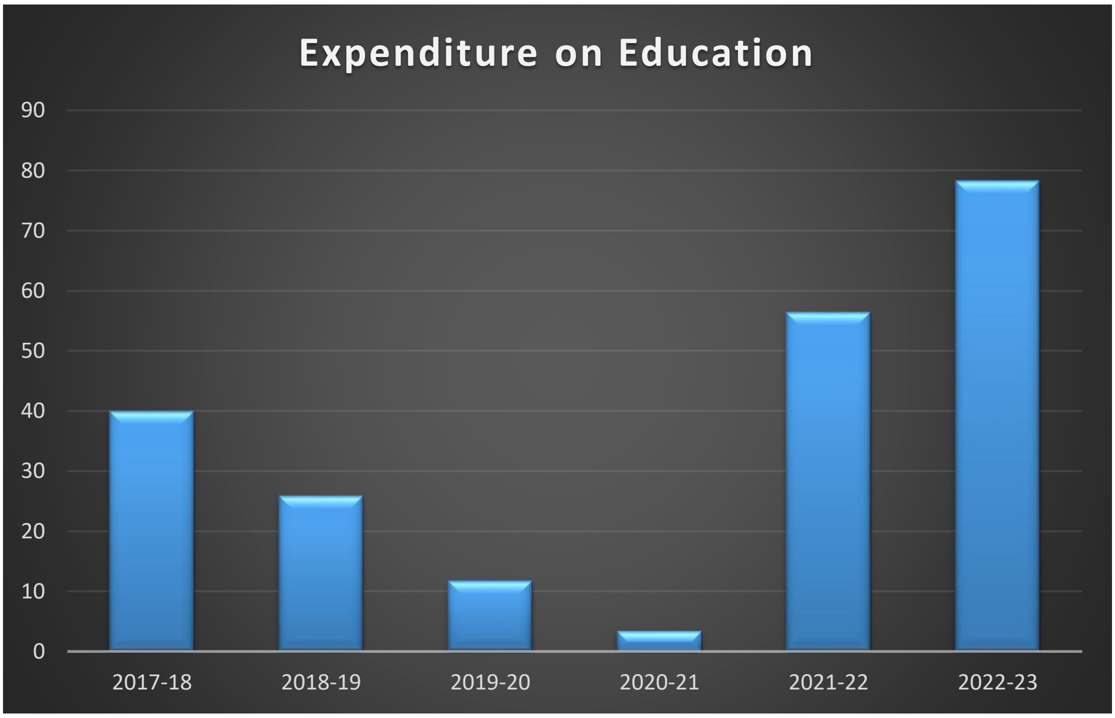
Interpretation

From the above table-3, during the pre-merger period, PNB allocated an average of ₹2423.20 lakhs annually to training and livelihood initiatives. Post-merger, PNB significantly increased its average annual expenditure to ₹3221.18 lakhs, marking a 32.9% rise compared to the pre-merger average. Before the merger, expenses on training and livelihood programmes has decreasing trend which was highest in the year 2017-18, Rs. 2540 lakhs but after the merger it has increasing trend in 2022-23 PNB spends Rs. 3648.11 Lakhs which was highest in selected six years.

CSR Expenditure by Punjab National Bank on Education

Table 4

CSR Expenditure on Education			
Pre-Merger		**Post-Merger**	
Year	**Expenditure (in lacs)**	**Year**	**Expenditure (in lacs)**
2017-18	40	2020-21	3.42
2018-19	25.9	2021-22	56.45
2019-20	11.71	2022-23	78.31
Average	25.87	Average	46.06



Graph 4

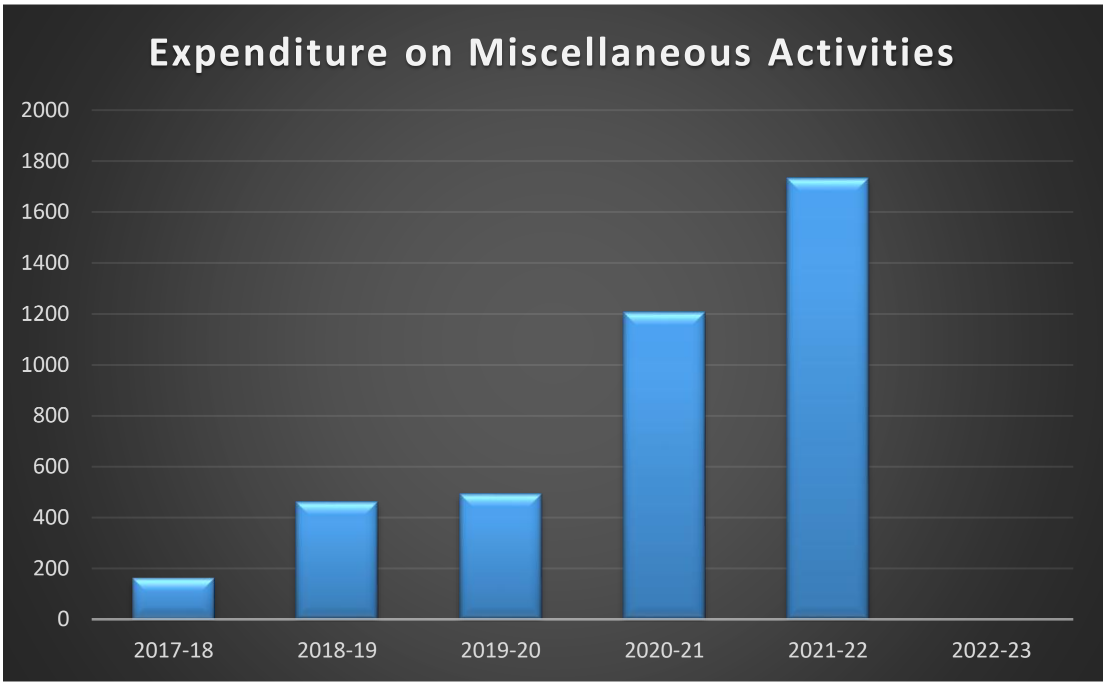
Interpretation

The data of Punjab National Bank's (PNB) CSR expenditure on education reveals an overall increase in focus on educational initiatives post-merger compared to the pre-merger period. However, the expenditure patterns show some fluctuations. During the pre-merger period, PNB allocated an average of ₹25.87 lakhs annually for educational CSR activities. The figures from above table shows declining trend in spending on education during the pre-merger period. Post-merger, PNB increased its average annual expenditure on education to ₹46.06 lakhs, marking a growth of approximately 78% compared to the pre-merger period. The significant rise in 2021-22 and 2022-23 indicates an increasing emphasis on education as a priority area within the bank's CSR strategy.

Table 5

CSR Expenditure on Miscellaneous Activities			
Pre-Merger		**Post-Merger**	
Year	**Expenditure (in lacs)**	**Year**	**Expenditure (in lacs)**
2017-18	161.82	2020-21	1205.19
2018-19	459.98	2021-22	1733.43
2019-20	493.2	2022-23	0
Average	371.67	Average	979.54

CSR Expenditure by Punjab National Bank on Miscellaneous Activity



Graph 5

Interpretation

In miscellaneous activities data are taken from PNB's spending on various activities such as Rogi kalyan samitis, covid-19 assistance, green initiatives etc. The data on Punjab National Bank's (PNB) CSR expenditure on miscellaneous activities reflects a substantial increase in spending post-merger compared to the pre-merger period, though with significant variability across the years. During the pre-merger period, PNB allocated an average of ₹371.67 lakhs annually to miscellaneous CSR activities. This period demonstrates a steady upward trend in expenditure, with nearly a threefold increase from 2017-18 to 2019-20. Post-merger, the average annual expenditure rose sharply to ₹979.54 lakhs, reflecting a 163.5% increase compared to the pre-merger period. The expenditure surge in 2020-21 and 2021-22 indicates a strong emphasis on miscellaneous CSR activities immediately following the merger.

Conclusion

The analysis of Punjab National Bank's (PNB) Corporate Social Responsibility (CSR) expenditure before and after its merger provides valuable insights into the bank's evolving priorities, strategic realignments, and commitment to societal development. The comparison of pre-merger and post-merger CSR activities reveals distinct patterns of growth, adaptation and reallocation of resources in response to changing societal needs and operational scale. The study shows a significant transformation in PNB's CSR strategy post-merger. While the pre-merger period focused on steady compliance and modest growth in expenditure, the post-merger era witnessed a substantial increase in spending and a realignment of priorities. The bank has shifted its focus from sports to livelihood and education, demonstrating adaptability to changing societal needs and leveraging its expanded resources to make a broader impact. Moving forward, PNB's CSR strategy can further benefit from balancing short-term priorities with long-term goals to maximize its contribution to sustainable development. In conclusion, PNB's CSR expenditure demonstrates a significant evolution post-merger, with increased spending, strategic realignment, and a sharpened focus on critical areas like livelihood development and education. These shifts underscore the bank's commitment to addressing pressing societal challenges while ensuring long-term developmental impact. Moving forward, maintaining a balanced approach—combining focus with flexibility—will be essential for sustaining its role as a key driver of inclusive and sustainable growth in India.

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IMPACT AND CHALLENGES OF GST ON SMALL SCALE INDUSTRIES

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Nisha Chopra**

ABSTRACT

This research paper deals with the study of small scale industries and Goods and Services Tax (GST). GST is the most important tax reform in India which has been pending for a long time. It was to be implemented from April 2010 but was delayed due to political issues and conflicting views of various stakeholders. It is a comprehensive tax system which amalgamates all indirect taxes of the Central and State Governments and integrates the economy into a seamless national market. It is expected to eliminate the shortcomings of the existing indirect tax system and play an important role in the development of India. GST is still in its initial stage in India which is based on the views of government agenda, financial advisors, CAs, business men, industrialists and many scholars. This research paper is related to a quantitative study. This paper, along with knowing the positive and negative effects on small scale industries after the implementation of GST Act on 1st July, 2017, also sheds light on the possibilities affected by GST in the development of small scale industries and the challenges that small scale industries will have to face in future.

***KEYWORDS**: GST, Indirect Tax, Small Scale Industries, Manufacturing Sector, Service Sector, Tax Reform.*

Introduction

Small Scale Industries: By small scale industries we mean small scale businesses like jaggery making, poultry farming, candle making, soap making, sewing, goat farming, milk production etc. That is, such works which are started on a small scale and can even be started from home are called small scale industries. Industries can be divided into two sectors.

- **Construction Sector:** Industries in the construction sector (excluding land and building expenses) which are established by investing Rs. 25 lakh or less come under the category of very small scale industries. Those industries which are established by investing more than 25 lakhs and less than 5 crores come under the category of small scale industries. And those industries which are established by investing more than 5 crores and less than 10 crores are included in middle class industries.
- **Service Sector:** Those industries (excluding land and building expenses) which have established a company by investing less than 10 lakhs come under the category of micro industries. Those industries which have established a company by investing more than 10 lakhs and less than 2 crores come under the category of small scale industries. And such industries which have invested more than 2 crores and less than 5 crores are considered to be included in middle class industries.

The historic, much awaited and much discussed 'Constitution (122nd Amendment) Bill 2014' is the bill which implements goods and services tax and is considered important in the development of Indian economy. Goods and Services Tax is considered to be the biggest tax reform after 1947. It has

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been mentioned for the first time in the general budget of 2006-07 in India. This bill was passed in the Lok Sabha on 6 May 2015, which was passed by the Rajya Sabha on 3 August 2016. Goods and Services Tax (GST) is a major step in reforming the tax structure of India. Goods and Services Tax (GSST) is an indirect tax law. GST is an integrated tax which will be levied on both goods and services. Currently, the indirect tax system in India is complex. So, with the implementation of GST, the whole country will be transformed into a unified market and most of the indirect taxes like Central Excise Duty (Central Excise Duty), Service Tax (SST), VAT, Entertainment, Luxury, Lottery Tax etc. will be subsumed in GST. This will make the same type of indirect tax applicable all over India. GST was first introduced by France in 1954 and now it has been implemented by 140 countries. Most of the countries followed the unified GST while some countries like Brazil, Canada follow the dual GST system where tax is levied by both the centre and the state. Dual system of GST is proposed in India. This includes CGST and SGST. After the implementation of GST, there are 3 types of taxes:

- **CGST:** Where it is collected by the central government.
- **SGST:** Revenue is collected by the state governments for sales within the state.
- **IGST:** Where revenue is collected by the central government for inter-state sales.

Literature Review

Ehtiyam Ahmed and Satya Poddar (2019) published “Goods and Services Tax Reforms in India and Intergovernmental Considerations” and found that GST introduction will provide a simple and transparent tax system in India along with increasing production and productivity of the economy. But the benefits of GST depend critically on the rational design of the goods and services tax.

Dr. R. Vasanthagopal (2021) in his study “GST in India: A Big Leap Forward in Indirect Tax System” concluded that a seamless GST would be a positive step to boost the Indian economy by replacing the current complex indirect tax system in India. The success of GST will lead to the acceptance of GST as a new preferred form of indirect tax system in more than 130 countries in the world and Asia.

Gogo Mauli (2024) in his study “Goods and Services Tax: An Evaluation” concluded that GST is not good for low-income countries and does not provide a broad base in poor countries. If these countries still want to implement GST, the GST rate should be less than 10% for growth.

Nitin Kumar (2024) conducted a study on “Goods and Services Tax A Forward” and concluded that the implementation of GST in India has helped in removing the economic distortions caused by the current indirect tax system. This is expected to incentivize a relatively indirect tax structure that is indifferent to geographical locations.

Research Methodology

This being an analytical research, is based on secondary data collected from various books, national and international journals, articles, newspapers and magazines and publications of various websites.

Objectives

- To study the impact of GST on MSMEs.
- To study the role of GST in the development of small scale industries.
- To study the challenges faced by small scale industries after GST.

Limitations of the Study

The first limitation of the study is that GST is still in its initial stage in India which is based on the ideas of government's agenda, financial advisors, CAs, business men, industrialists and many scholars, and not in practical form.

Impacts

- **One Tax Market:** The biggest benefit of GST to the citizens of the country is that they will have to pay only one tax on goods across the country. Due to this, the price of goods remains the same across the country. There is uniformity in indirect taxes in the country through goods and service tax.
- **Reduction in Indirect Taxes:** GST is such a tax, which is imposed on the manufacturing, sale and use of any goods or service at the national level. Tax disputes will be reduced and there will

be no hassle of laws and regulators. After the implementation of this tax, customs duty, central sales tax (CST), state level sales tax or VAT, entry tax, stamp duty, telecom license fee, turnover tax, taxes on the use or sale of electricity, taxes on the transportation of goods etc. were abolished.

- **Simplification of Tax System:** With the implementation of GST, the tax structure improved. Paying tax became easy. This also stopped tax evasion. The tax levied on any similar product became the same. This had a direct impact on the GDP of the country. The country's economy improved.
- **Reduction in the Complexity of Tax Payment:** With the implementation of GST, the problems and expenses of the companies reduced. One does not have to pay different taxes for the same product. Traders do not face any problem in taking goods from one place to another. This reduced the cost of manufacturing goods.
- **Pros and Cons:** GST has both negative and positive aspects. After its implementation, goods became cheaper, but some services became expensive. Earlier, 14.5 percent tax was levied on services, whereas after GST it has become 18 percent or more. On the other hand, consumers got relief in those goods on which 25 to 30 percent tax was levied.
- **Stability in the Cost of Goods and Services:** After the implementation of GST, only one type of indirect tax is levied all over India. Due to which the cost of goods and services became stable and the same rate of tax was imposed all over India, due to which the price of goods and services became the same in all the states. Earlier, different types of taxes were imposed on the same goods, but with the advent of GST, the same type of tax is imposed on all goods and services, which reduced the cost of goods. Although the cost of services increased due to this, but the most important benefit was that with the implementation of GST, Central Sales Tax (CST) was included in GST, which reduced the prices of goods.
- **There will be no Scope for Hara Pheri:** Actually the problem is about formal and informal. Till now a lot of work was being done informally, whereas in the new system, if you want to take credit of tax, then you have to make a formal bill. The new system is completely computerized, in which there will be complete record and there is no scope of fraud.
- **Reduction in Tax Evasion:** Goods and Service Tax (GST) has helped small and medium industries in reducing tax evasion and ending inspector raj, that is, along with curbing tax evasion, tax collection is also done. Industries need not be afraid of anything. We are working across the country to resolve all issues. The government has created GST cells to resolve all the problems related to the new tax system.
- **Improvement in Tax Structure:** This will eliminate the cascading effect of taxes on the customers and will bring efficiency in the prices of products. GST has brought transparency in the tax rates as everything will be online. GST as a whole has proved to be decisive for most industries and especially e-commerce.
- **Benefits of GST up to a Certain Extent:** The implementation of GST has not affected the traders having turnover up to Rs 20 lakh annually. They are doing their business in the same way as they have been doing it, there is no need to panic. “There have been some problems in the initial phase but later everyone has benefited from it.

Challenges

The implementation of GST is one of those decisions of independent India which will be considered a historic decision in the future. If any problem arises, the government will also have to be responsible for it. Use of computers and technology is necessary in GST. If it is not computerized, it cannot be implemented. There are many kinds of problems in computerization which are coming to the fore. In the border areas of Rajasthan and Punjab, all work is done through ledgers only. It will take time for them to work on computers. In the old tax system, every state had the opportunity to decide the tax according to its needs.

After the implementation of GST, many sectors have stopped sending and importing goods because they are still assessing the effects of GST. It definitely had an impact on the market. Traders do not want to be in the computer records.

Country's leading industry body Assocham said that the Goods and Services Tax (GST) has increased the competition among the Micro, Small and Medium Enterprises (MSMEs). Assocham has also released a report on this indirect tax system which has been implemented across the country. GST has many positive features as compared to the previous tax system. These include facility of getting input credit, single point tax, elimination of multi-level taxation and easy process of paying tax. Assocham, however, also said that GST, which was introduced with the objective of bringing more and more population of the country under the tax system and increasing its reach to more and more MSME industries, has also increased the burden of paying taxes and the associated cost.

Suggestion

The parameter of development of any city depends on its industrial development. The more industries are operated there, the better it will be. The growth rate there will be that much higher, whether it is a large scale industry or a small scale industry. With the implementation of GST system, there have been some problems in the beginning on the industrial development of rural and urban areas, import-export business, but later its benefits have started to appear. This system has curbed Jugaad Baazi in the country and the transactions without accounting have reduced which is in the interest of the country. Hence, there is a need for the government to organize proper training, seminars and workshops on GST. Hence, with the help of the trained employees, awareness should be spread among the public and industrialists, traders and the advantages and disadvantages of GST should also be told. So that GST can be made successful in the context of the Indian economy.

Conclusion

From the above discussion, it can be concluded that the Goods and Services Tax Act is the most important tax reform in India till date. After the implementation of GST on 1st July, 2017, its condition today is the same as it was during the beginning of demonetization. Along with positive results, GST has not brought any major negative results. With the implementation of GST, there is one country one tax market. Due to which there is freedom from unnecessary indirect taxes. Along with this, there is equality in the tax rates on goods and services in the center and the state. Due to repeated imposition of taxes, the cost of goods and services used to increase, due to which goods and services used to become expensive. Now with the implementation of GST, goods are becoming cheaper and services are becoming expensive.

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A STUDY ON CONSUMER ELECTRONIC PRODUCTS USAGE AND E-WASTE MANAGEMENT PRACTICES

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ABSTRACT

The manner of living of humans in modern era has profoundly influenced by waste management, with technological breakthroughs which creates both environmental challenges and economic opportunities. E-waste, which results from the disposal or validity of electronic products, has emerged as one of the blooming domestic waste streams. Effective E-waste management and monitoring are crucial for optimizing resource use and mitigating the negative impacts of E-waste in alignment with the Sustainable Development Goals. With the pollution control board acting as the main oversight and enforcement body, India has put rules and regulations into place to guarantee the safe handling, management, and treatment of e-waste. E-waste encompasses all types of discarded electrical and electronic devices. While the use of new electronic products has surged, there is often little focus on their proper disposal. Recycling e-waste is vital for safeguarding the environment and public health. This paper concentrates on how individual consumers manage portable device e-waste and reviews government initiatives aimed at raising public awareness of e-waste management. The study evaluates consumer usage behaviour and awareness through a questionnaire, revealing the advantages of establishing an e-waste collection system and enhancing waste management policies.

KEYWORDS: *E-waste, Govt. Legislations, e-Waste Management, Consumer Awareness.*

Introduction

Electrical and electronic equipment (EEE) plays a critical role in modern life, enhancing global living standards through its broad range of applications. India, one of the largest electronics consumer markets in the Asia-Pacific, has emerged as a global leader in electronic system design and manufacturing (ESDM), with its share of the global electronics system manufacturing industry rising from 1.3% in 2012 to 3.6% by 2019 [1]. The rapid technological growth has resulted in a surge of EEE products, but traditional economic models have significantly increased e-waste, a growing global issue [2]. Advances in material science have led to the creation of feature-rich products that are difficult to recycle with current technologies, causing many to end up in landfills or incineration plants [3]. According to the Basel Convention, waste refers to materials that are discarded, intended for disposal, or legally mandated for disposal [4]. Although electronic devices are designed to enhance human life, their disposal poses serious environmental risks due to toxic substances [5]. This unsustainable production, use, and disposal cycle generates large amounts of e-waste [6].

The circular economy (CE) promotes a restorative and regenerative industrial system, replacing the concept of end-of-life with regeneration, encouraging renewable energy use, and eliminating harmful chemicals that obstruct reuse [7]. E-waste includes everything from kitchen appliances to computers and smart phones, as well as equipment used in transportation, security, energy, and healthcare systems, all integral to modern society [8]. Technological advancements have rapidly altered the nature of e-waste,

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with faster innovation, obsolescence, and higher waste generation, emphasizing the need for life cycle impact assessment and end-of-life solutions [9]. Currently, the economy operates on a linear model, following a "take-make-dispose" approach. To mitigate environmental and health risks from informal e-waste recycling, the Government of India's Ministry of Electronics and Information Technology (MEIT) initiated an e-waste awareness program [10]. Recycling e-waste offers environmental benefits and can create job opportunities, particularly for disadvantaged rural communities. The Indian government has recognized the importance of scientific e-waste recycling through the Swachha Digital initiative, as part of the broader Swachha Bharat mission [11].

Definitions of E-Waste

E-waste encompasses all discarded electrical and electronic equipment (EEE), along with its components, no longer intended for reuse by their owners [12]. This includes devices slated for refurbishment, recycling, reuse, or disposal, such as personal computers, televisions, and smart phones [13]. Additionally, e-waste includes subassemblies, parts, and consumables that have been stored or discarded by their original users [14].

Global total E-waste break downs

Table 1: Global total E-waste break downs

Categories	Full name	Percentage
1	Temperature Exchange Equipment	20.10%
2	Screens, Monitors, and Equipment Containing Screens	12.50%
3	Lamps	1.70%
4a &4b	Large Equipment (excluding photovoltaic panels)	24.40%
5	Small Equipment	32.50%
6	Small IT and Telecommunication Equipment	8.80%
	Total	100.00%

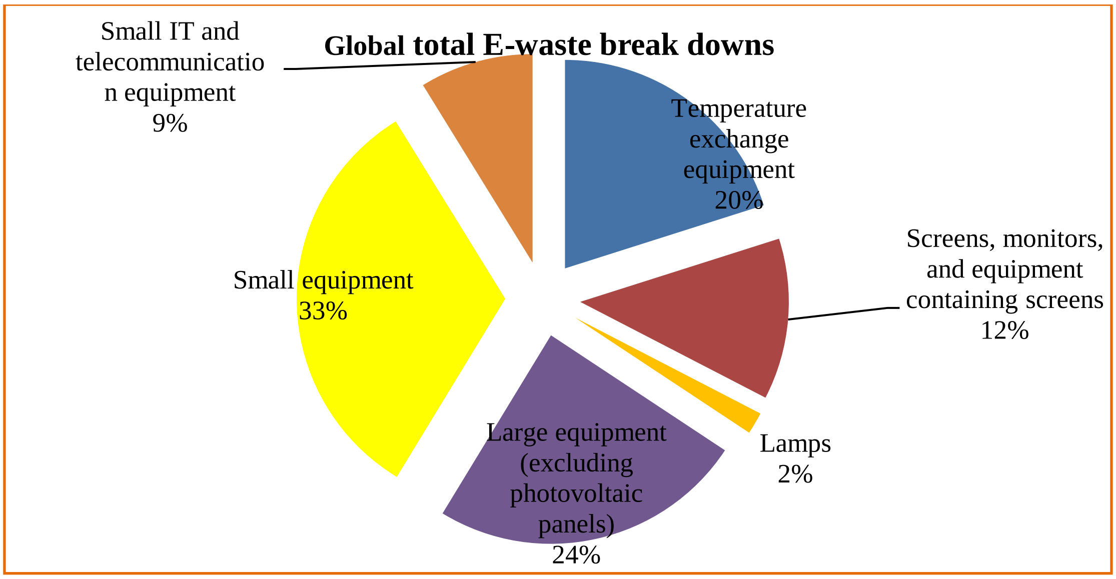


Figure 1: Global total E-waste break downs

Source: Global E-waste monitor- 2019

Importance of E-waste Management

E-waste management aims to create a sustainable circular economy, requiring collaboration between governments, businesses, and consumers. Effective strategies are needed for responsible electronics use and disposal to support a healthy global economy. The importance of proper e-waste management emphasised due to its hazardous nature and suggested adopting best practices from other countries [21].

E-waste & its Negative Effects on the Environment

A study in India found high levels of lead and mercury contamination in areas processing e-waste. Loni's soil had 150 times more lead than control samples, and Mandoli's water had mercury levels 710 times the recommended limit. Both regions showed heavy metal pollution in their water supplies. Improper e-waste disposal releases harmful toxins into the environment, affecting air, soil, and water. This contamination poses risks to human health and future generations. Effective e-waste management depends on raising awareness and education [15].

The environmental impacts of improper waste management are significant and far-reaching. Toxic chemical releases, such as lead and mercury, pose severe risks to ecosystems and public health [42]. Soil contamination occurs when toxic compounds leach into the soil, affecting agricultural productivity and food safety [43]. Water pollution results from the contamination of groundwater by hazardous leachate, causing long-term ecological damage [44]. Air pollution is exacerbated by harmful gas emissions from waste incineration, degrading air quality and affecting public health [43]. Additionally, greenhouse gas emissions during manufacturing and disposal contribute significantly to climate change [42]. Resource depletion arises from the loss of valuable metals due to improper disposal, driving increased mining activities [46]. Biodiversity is also threatened by habitat destruction from resource extraction and pollution [45]. Moreover, communities near waste processing sites face elevated health risks due to toxic exposure [44], and they often bear the economic burden of environmental remediation and health expenses [42].

Review of Literature

In Asia Pacific countries reviewed past studies on e-waste management from 2005 to 2020, highlighting the need for improved practices [18]. Another study reviewed waste management in countries like Canada, France, the US, the UK, Nigeria, and South Africa, suggesting best practices and recommending further research to address country-specific challenges [19]. Globally in 2019 reported that 53.6 million tonnes of e-waste were generated, with Asia producing the most at 2.9 million ns. Only 17% of this waste was recycled, leaving the fate of the rest unknown. The World E-waste Monitor indicated that e-waste increased by 21% from 2014 to 2019 and is expected to reach 74 million tonnes by 2030 [10].

Deloitte's 2022 Global TMT study predicts that India will become the second-largest smart phone manufacturer by 2026, with a billion users. In the UAE, the analytic hierarchy process identified recycling as the best e-waste management option in 2022. To tackle challenges like low electricity supply and limited environmental awareness, accelerating system operations to meet national and global standards is essential.

A survey conducted among engineering students in India and found gaps in the processes for generating and handling e-waste. Although there is growing support for increased producer responsibility, public awareness of e-waste management remains limited despite the efforts of authorities [16]. The effects of e-waste management examined on the environment and human health, concluding that effective control requires an inventory of obsolete electronics and the establishment of an environmentally sound recycling regulatory system [17].

E-waste issues reviewed in Nigeria, highlighting the sources and dangers of e-waste. They recommended appropriate treatment methods to ensure environmental safety, noting that everyone has a role in e-waste generation [22]. Challenges identified in e-waste management in India, noting poor practices and inadequate policy implementation. They stressed the urgent need to address these issues to avoid future harm [23]. It is observed that electronic waste is rapidly increasing in Mumbai and Thane due to technological advancements and lower prices [24]. A sustainable model suggested to bridge the knowledge gap between e-waste producers and the recycling industry, advocating for awareness campaigns through various media and community collection centre [25].

- **Consumer Awareness on E-waste**

Consumer awareness of e-waste is high found in Pune, India, there are few effective disposal practices. They recommended adopting a reuse and repair strategy to manage e-waste sustainably. Without awareness and willingness to participate, implementing e-waste management systems is difficult [20]. Education and income levels significantly affect consumer awareness of e-waste management [26]. Over 60% of Kolkata resident’s dispose of e-waste through local scrap dealers, and 84% are unaware of its negative impacts [27]. Understanding consumer disposal methods is crucial for designing effective e-waste management solutions [28].In Indonesia, 77% of respondents are aware of e-waste, and 58% are willing to participate in recycling [29]. Most European and North American consumers believe recycling mitigates environmental degradation [30]. Majority of study participants were knowledgeable about the impacts of e-waste, consistent with previous research [31] [32]. In Kolkata, lower-income groups (SEC C) had higher e-waste obsolescence rates, with low awareness of safe disposal [33]. E-waste management in Kuala Lumpur is positively influenced by awareness, knowledge, and risk perception, impacting recycling behavior [34].

In Ghana, a significant number of respondents demonstrate awareness of e-waste and its health risks, correlating with their educational qualifications. Despite this, many institutions remain uninformed about the country's e-waste regulations, mirroring findings [35] [36]. In Ghana, found that e-waste contaminants significantly affect waterways, confirming the substantial impact of these pollutants [37]. Additionally, [38] noted that while about half of their survey respondents were aware of e-waste, many supported e-waste management policies only if they did not involve additional levies.

Research Methodology

Research Design

The research design began with an exploratory approach to understand consumer awareness of e-waste in Vizag city, involving literature review, objective setting, and hypothesis formation. Primary data was collected through a structured questionnaire using a five-point Likert scale and yes or no type questions. A conclusive design incorporated descriptive methods to characterize the population through questionnaires and interviews, along with causal methods to examine cause-and-effect relationships between variables.

Statement of the Problem

Effective e-waste management is crucial for removing electronic waste from the environment, and recycling plays a key role in this process. However, consumers face difficulties in disposing of electronic scrap due to the lack of recycling facilities and proper collection centers. This study was conducted to examine how consumers manage electronic waste.

Importance of the Study

This study emphasizes the importance of proper e-waste management to prevent harmful toxins from damaging the environment and posing health risks. It also highlights the benefits of recycling to conserve raw materials, reduce emissions, and promote public awareness on correct disposal methods.

Objectives of the Study

- To identify the current electronic and electrical equipment's usage of consumers.
- To assess the current level of e-waste awareness and disposal practices in the selected area.

Sampling Design

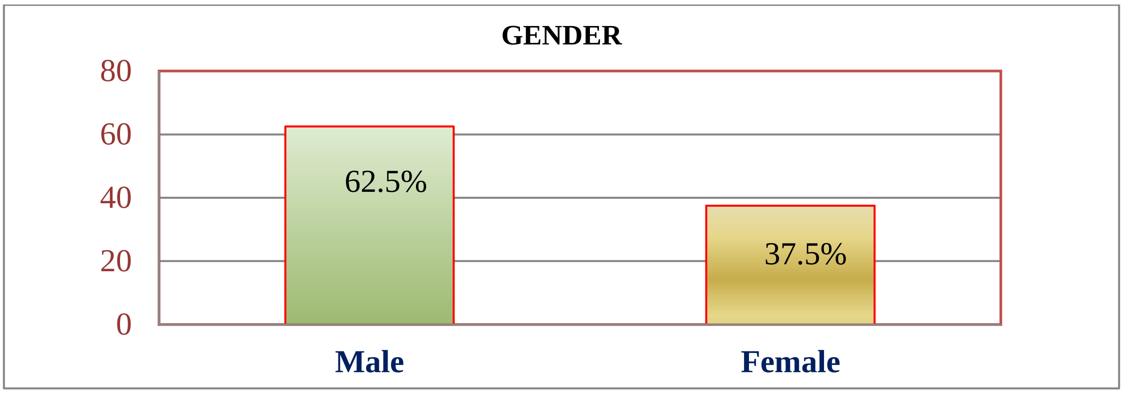
The sampling design for this study incorporated several essential components. Initially, a comprehensive sampling frame was created to provide a complete list of potential sampling units within the target population. Primary data was collected through a structured questionnaire and secondary data sourced from journals and websites. For research purposes, we selected each sampling unit, whether it is a geographic location or a consumer. The overall approach aimed to estimate population characteristics by selecting a smaller, representative sample. A total of 160 consumers from Vizag were surveyed using the cluster sampling method, with all responses successfully collected. Data analysis was conducted using SPSS, employing statistical techniques such as the percentages and ANOVA to derive accurate conclusions.

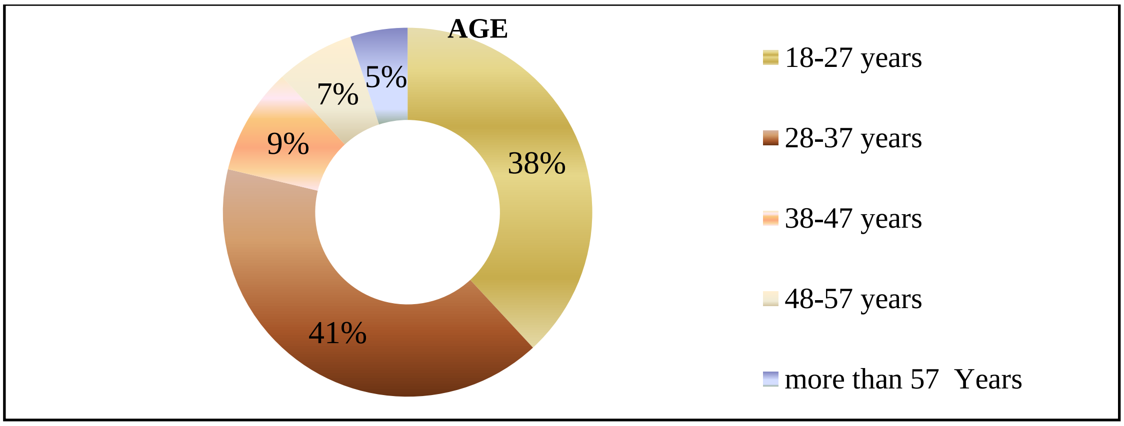
Analysis and Interpretation

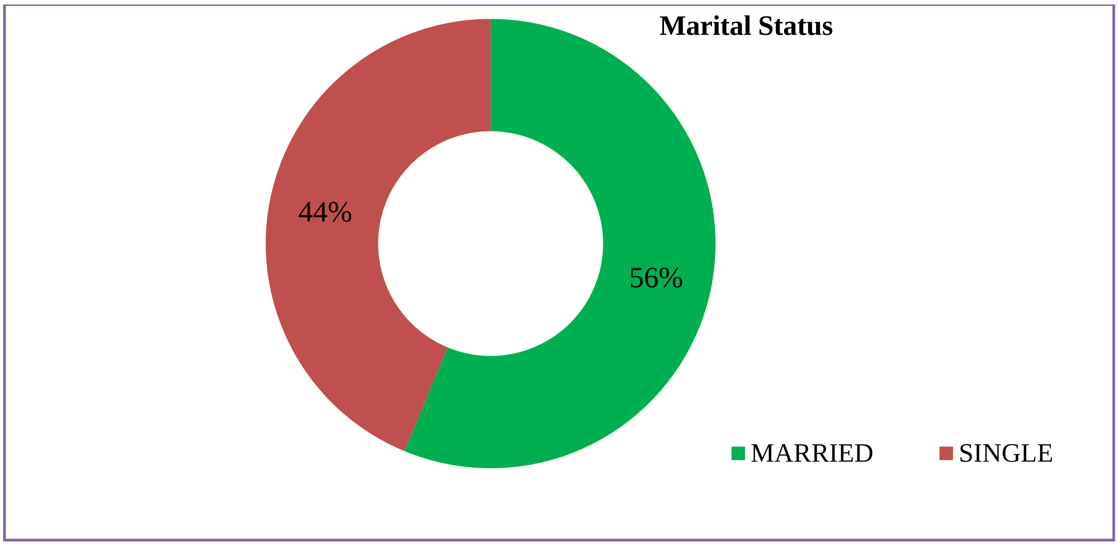
Table 2: Demographic and socio-economic characteristics of consumer

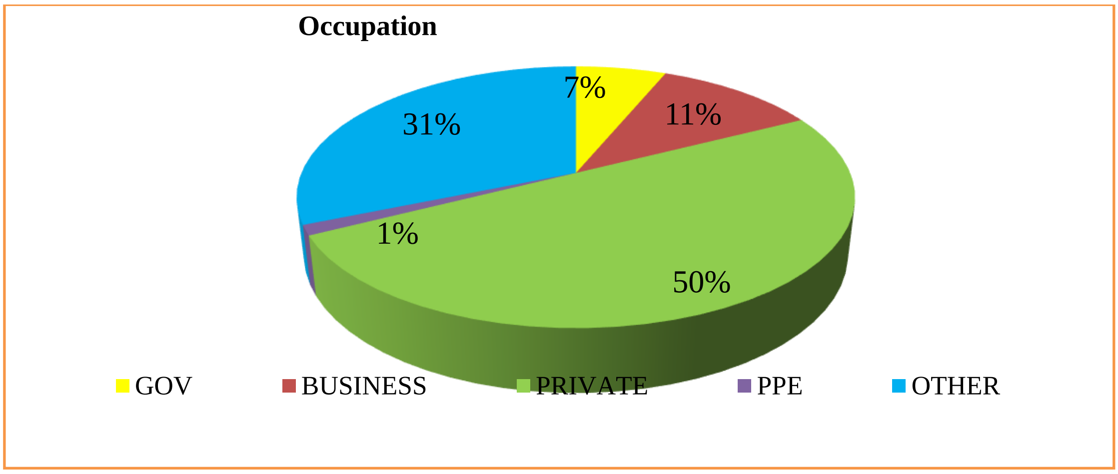
Characteristics	Category	Frequency	Percentage
Gender	Male	100	62.5
	Female	60	37.5
	Total	160	100.0
Age	18-27 years	61	38.1
	28-37 years	65	40.6
	38-47 years	15	9.4

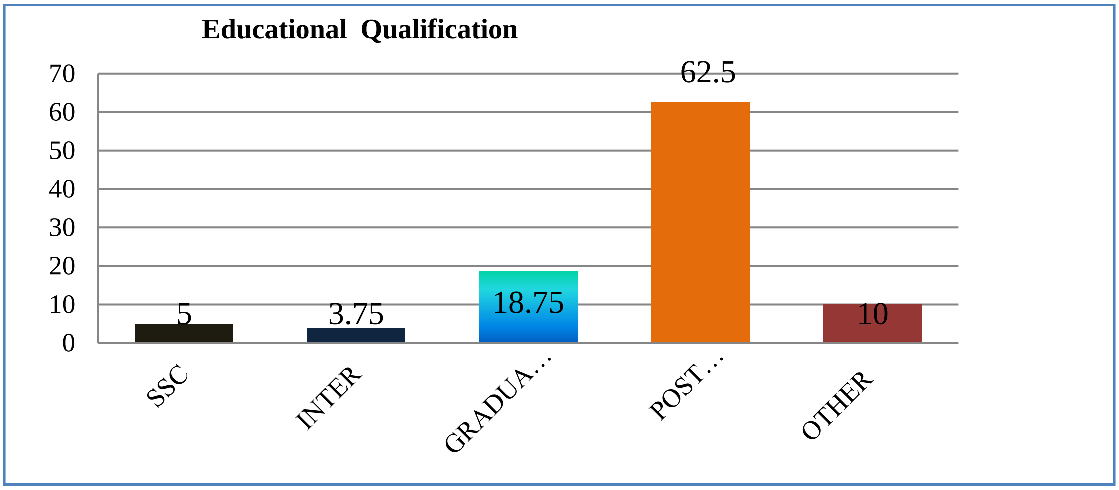
	48-57 years	11	6.9
	More Than 57 years	8	5.0
	Total	160	100.0
Educational Qualification	SSC	8	5.0
	Inter	6	3.8
	Graduate	30	18.8
	Postgraduate	100	62.5
	Doctorate	6	3.8
	Others	10	6.3
	Total	160	100.0
Occupation	Government employee	10	6.3
	Business	18	11.3
	Private employee	80	50.0
	Private professional	2	1.3
	Others	50	31.3
	Total	160	100.0
Income	10000-30000	97	60.6
	30001- 50000	34	21.3
	50001-70000	13	8.1
	More than 70000	16	10
	Total	160	100.0
Marital Status	Married	90	56.3
	Unmarried	70	43.7
	Total	160	100.0






Marital Status
44%
56%
MARRIED
SINGLE


Occupation
7%
11%
31%
1%
50%
GOV
BUSINESS
PRIVATE
PPE
OTHER


Educational Qualification
70
60
50
40
30
20
10
0
62.5
5
3.75
18.75
10
SSC
INTER
GRADUA…
POST …
OTHER

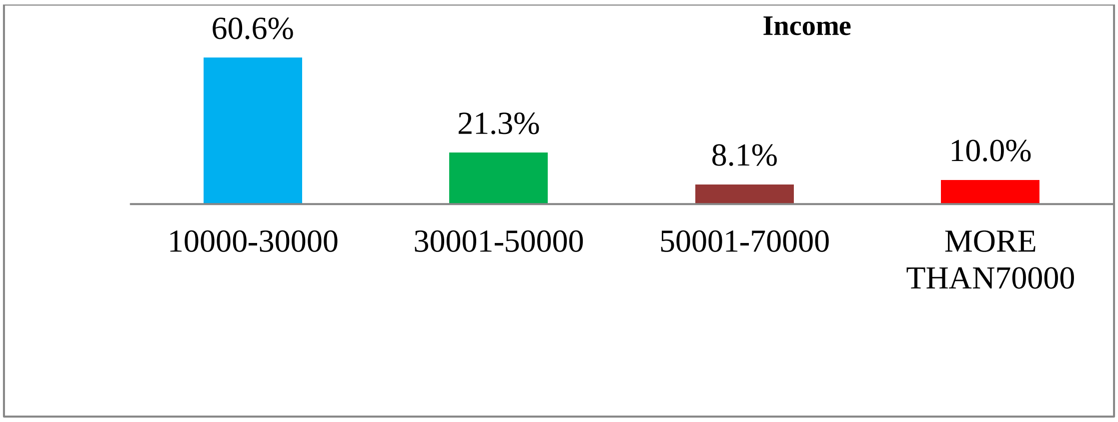


Figure 2: Demographic Profile of Respondents

Table 2 presents the demographic data of the 160 respondents. Among them, 62.5% were men and 37.5% were women. The majority (41%) were aged 28 to 37 years, followed by 38% in the 18 to 27 age group. Most respondents (62.5%) held a postgraduate degree, while 18.75% had completed their graduation, and 10% had other qualifications. Regarding marital status, 56.3% were married, and 43.7% were unmarried. In terms of income, 60.6% earned between 10,000 and 30,000, while 21.3% earned 30,001 to 50,000. Occupation-wise, 50% were private employees, 31% were in other professions, and 11% were government employees. This demographic profile highlights a relatively young, educated population with a significant representation of private sector employees.

- **Electronic Gadgets Usage of Consumers**

Table 3: Present usages of electronic devices

Electronic Gadgets	No of Households Using	(%)
Personal computer	98	69%
Laptop	110	75%
Mobile Phone	150	95%
Tab	40	44%
Television	152	94%
Refrigerator	130	82%
Air conditioner	90	57%
Washing Machine	95	60%

Figure 3: Present usage of electronic gadgets

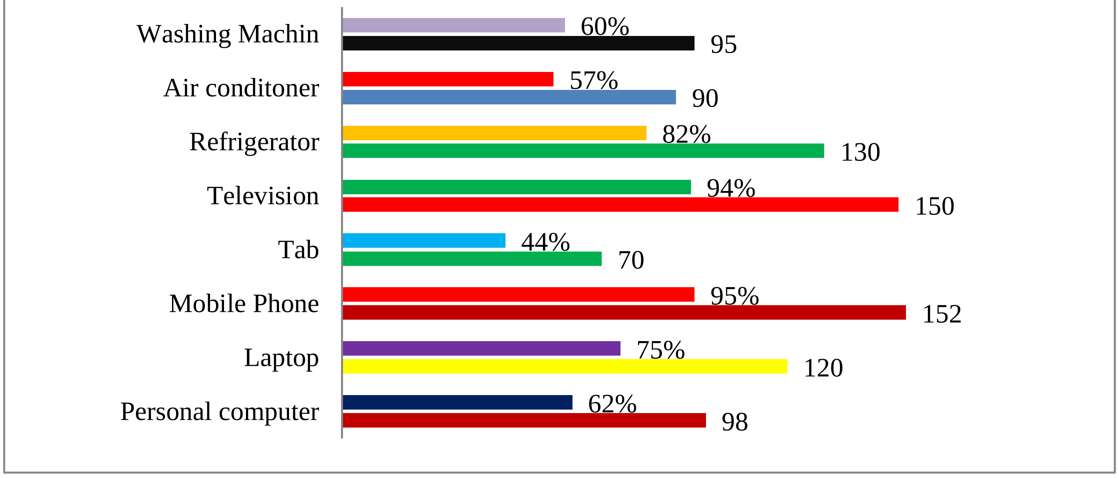
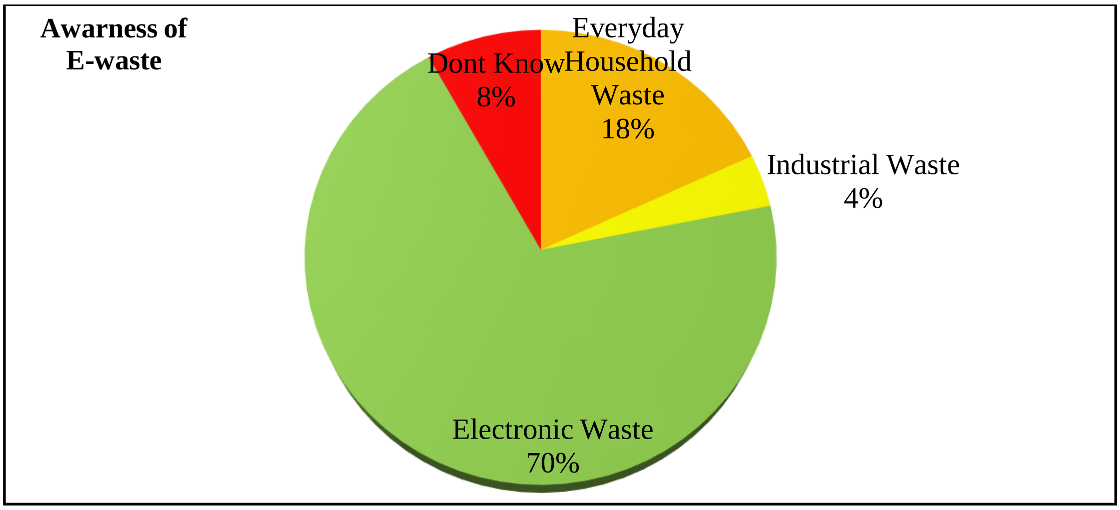


Figure 3 interprets the data Out of 160 household respondents, the highest 95% percentage of respondents were using mobile phones, whereas 94% of respondents were using televisions, 82% of respondents were using refrigerators, 75% of respondents were using laptops,44% of respondents fewer were using tabs.

- **Awareness of consumers regarding e-waste**

Table 4

	Responses	Frequency	Percentage
According to you what is E-waste?	Everyday household waste	29	18.1
	Industrial waste	6	3.8
	Electronic waste	112	70.0
	Don't know	13	8.1
	Total	160	100.0
What is the source of awareness to dispose?	Internet	107	66.9%
	TV	14	9.8%
	Friends	27	16.8%
	User manuals	12	7.5%
	Total	160	100.0



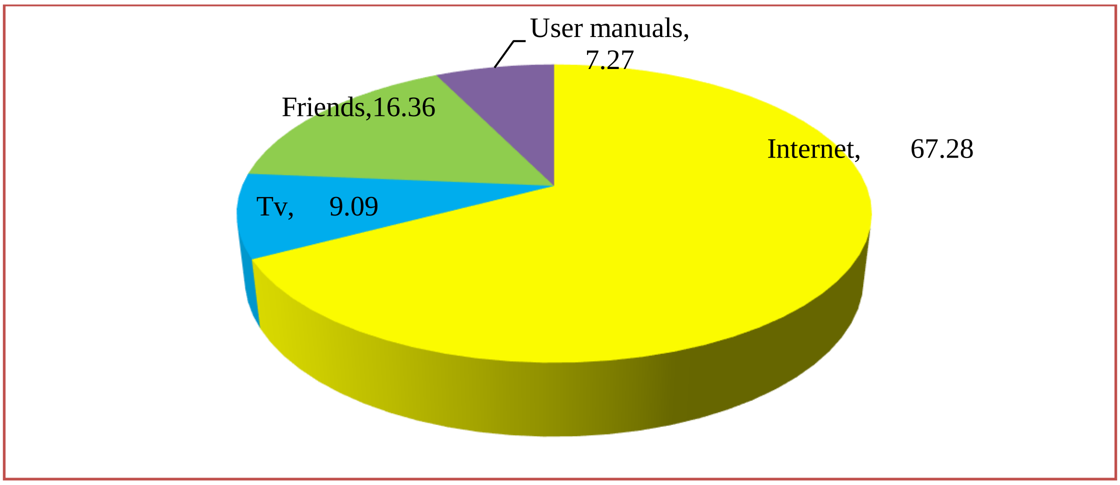


Figure 4

Figure 4 shows the respondents' general awareness of e-waste. About 70% of respondents recognized what electronic waste is, while 18% thought e-waste was just regular household waste. Additionally, 8% were unsure about e-waste, and only 4% considered it to be industrial waste. Regarding the sources of their knowledge, over 71% learned about e-waste disposal awareness from the Internet, 17% from friends, and 9% from television, making these the main sources of information to dispose.

- **Options adopted disposing the gadgets**

Table 5: Options adopted disposing the gadgets

Responses	Frequency	Percentage
Stores it in home	48	30.0
Through it in dustbins along with other wastes	6	3.8
Donate to others	26	16.3
Return to the seller for exchange	37	23.1
Scrap dealers	4	2.5
Others	13	8.1
Not applicable	26	16.3
Total	160	100.0

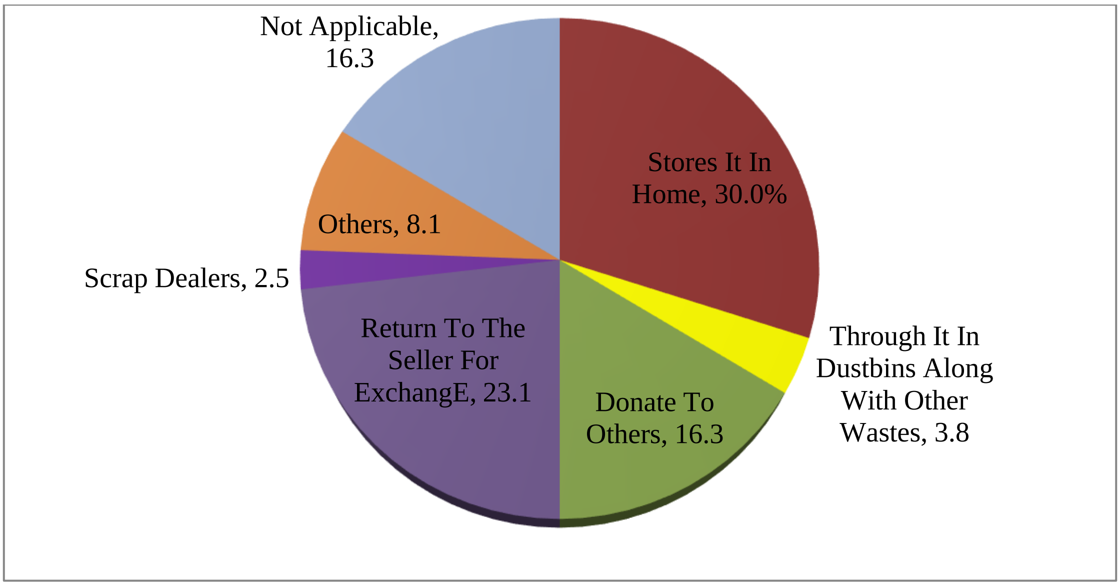


Figure 5: Options adopted disposing the gadgets

Figure 5 interprets that e-waste disposal practices of consumers 30% of respondents have storing e-waste in homes, 23% of the respondents giving return to exchange, 16.3% of the members have donating to friends,8% respondents disposing e-waste with other sources, 2.5% of the respondents have giving scrap dealers.

Null hypothesis (H0): There is no association between gender and disposal method

Table 6: ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computers * gender	B/W Groups	1.307	1	1.307	.225	.636	**H0: Accepted**
	Within Groups	918.293	158	5.812			
	Total	919.600	159				
Laptops * gender	B/W Groups	34.082	1	34.082	7.652	.006	**H0: Rejected**
	Within Groups	703.693	158	4.454			
	Total	737.775	159				

Mobile phones * gender	B/W Groups	.240	1	.240	.042	.837	**H0: Accepted**
	Within Groups	895.360	158	5.667			
	Total	895.600	159				
Tab * gender	B/W Groups	2.282	1	2.282	.395	.530	**H0: Accepted**
	Within Groups	911.693	158	5.770			
	Total	913.975	159				
Television * gender	B/W Groups	57.042	1	57.042	27.500	.000	**H0: Rejected**
	Within Groups	327.733	158	2.074			
	Total	384.775	159				

Summary: Reject the null hypothesis for laptops and televisions; accept it for personal computers, mobile phones, and tablets.

Null hypothesis (H0): There is no coalition between Age and disposal method

Table 7: ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computers * age	B/W Groups	27.095	4	6.774	1.176	.323	**H0: Accepted**
	Within Groups	892.505	155	5.758			
	Total	919.600	159				
Laptops * age	B/W Groups	50.491	4	12.623	2.847	.026	**H0: Rejected**
	Within Groups	687.284	155	4.434			
	Total	737.775	159				
Mobile phones * age	B/W Groups	56.938	4	14.234	2.631	.036	**H0: Rejected**
	Within Groups	838.662	155	5.411			
	Total	895.600	159				
Tab * age	B/W Groups	50.179	4	12.545	2.251	.066	**H0: Accepted**
	Within Groups	863.796	155	5.573			
	Total	913.975	159				
Television * age	B/W Groups	32.436	4	8.109	3.567	.008	**H0: Rejected**
	Within Groups	352.339	155	2.273			
	Total	384.775	159				

Summary: Reject the null hypothesis for laptops, mobile phones, and televisions, indicating that age significantly affects disposal practices. Accept the null hypothesis for tablets and personal computers, showing no significant effect of age.

Null hypothesis (H0): No coalition identified between marital status and disposal method

Table 8: ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computer * marital status	B/W Groups	1.095	1	1.095	.188	.665	**H0: Accepted**
	Within Groups	918.505	158	5.813			
	Total	919.600	159				
Laptop * marital status	B/W Groups	5.879	1	5.879	1.269	.262	**H0: Accepted**
	Within Groups	731.896	158	4.632			
	Total	737.775	159				
Mobile phones * marital status	B/W Groups	5.637	1	5.637	1.001	.319	**H0: Accepted**
	Within Groups	889.963	158	5.633			
	Total	895.600	159				
Tab * marital status	B/W Groups	1.790	1	1.790	.310	.578	**H0: Accepted**
	Within Groups	912.185	158	5.773			
	Total	913.975	159				
Television * marital status	B/W Groups	36.803	1	36.803	16.711	.000	**H0: Rejected**
	Within Groups	347.972	158	2.202			
	Total	384.775	159				

Summary: Reject the null hypothesis for televisions, indicating a significant influence of marital status. Accept the null hypothesis for personal computers, laptops, mobile phones, and tablets, showing no significant effect of marital status on these devices.

Null hypothesis (H0): No association found between education and disposal method

Table 9: ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computer * education	B/W Groups	21.682	5	4.336	.744	.592	**H0: Accepted**
	Within Groups	897.918	154	5.831			
	Total	919.600	159				
Laptop * education	B/W Groups	15.027	5	3.005	.640	.669	**H0: Accepted**
	Within Groups	722.748	154	4.693			
	Total	737.775	159				
Mobile phone * education	B/W Groups	21.798	5	4.360	.768	.574	**H0: Accepted**
	Within Groups	873.802	154	5.674			
	Total	895.600	159				
Tab * education	B/W Groups	21.910	5	4.382	.756	.583	**H0: Accepted**
	Within Groups	892.065	154	5.793			
	Total	913.975	159				
Television * education	B/W Groups	2.392	5	.478	.193	.965	**H0: Accepted**
	Within Groups	382.383	154	2.483			
	Total	384.775	159				

Summary: results indicate that there are no significant differences in the means of any variables based on education levels.

Null hypothesis (H0): There is no association between type of residence and disposal method

Table 10: ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computer * residence	B/W Groups	(Combined)	2.357	1	2.357	.406	.525	**H0: Accepted**
	Within Groups		917.243	158	5.805			
	Total		919.600	159				
Laptop * residence	B/W Groups	(Combined)	7.877	1	7.877	1.705	.194	**H0: Accepted**
	Within Groups		729.898	158	4.620			
	Total		737.775	159				
Mobile phone * residence	B/W Groups	(Combined)	.065	1	.065	.012	.915	**H0: Accepted**
	Within Groups		895.535	158	5.668			
	Total		895.600	159				
Tab * residence	B/W Groups	(Combined)	2.003	1	2.003	.347	.557	**H0: Accepted**
	Within Groups		911.972	158	5.772			
	Total		913.975	159				
Television * residence	B/W Groups	(Combined)	.107	1	.107	.044	.834	**H0: Accepted**
	Within Groups		384.668	158	2.435			
	Total		384.775	159				

Summary: results indicate that there are no significant differences in the means of any variables based on residence.

Null hypothesis(Ho): There is no association between size of family and disposal method

Table 11: ANOVA Table

		Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computers* size of family	B/W Groups	34.058	3	11.353	2.000	.116	**H0: Accepted**
	Within Groups	885.542	156	5.677			
	Total	919.600	159				
Laptops * size of family	B/W Groups	17.233	3	5.744	1.244	.296	**H0: Accepted**
	Within Groups	720.542	156	4.619			
	Total	737.775	159				
Mobile phones * size of family	B/W Groups	18.183	3	6.061	1.078	.360	**H0: Accepted**
	Within Groups	877.417	156	5.624			
	Total	895.600	159				

Tab * size of family	B/W Groups	8.825	3	2.942	.507	.678	**H0: Accepted**
	Within Groups	905.150	156	5.802			
	Total	913.975	159				
Television * size of family	B/W Groups	2.283	3	.761	.310	.818	**H0: Accepted**
	Within Groups	382.492	156	2.452			
	Total	384.775	159				

Summary: results reveal that there are no significant differences in the means of the variables across different sizes of family.

Null hypothesis (H0): There is no association between type of employment and disposal method.

Table 12: ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computer * employment	B/W Groups	(Combined)	27.096	4	6.774	1.176	.323	**H0: Accepted**
	Within Groups		892.504	155	5.758			
	Total		919.600	159				
Laptop * employment	B/W Groups	(Combined)	10.858	4	2.715	.579	.678	**H0: Accepted**
	Within Groups		726.917	155	4.690			
	Total		737.775	159				
Mobile phone * employment	B/W Groups	(Combined)	50.233	4	12.558	2.303	.061	**H0: Accepted**
	Within Groups		845.367	155	5.454			
	Total		895.600	159				
Tab * employment	B/W Groups	(Combined)	32.708	4	8.177	1.438	.224	**H0: Accepted**
	Within Groups		881.267	155	5.686			
	Total		913.975	159				
Television * employment	B/W Groups	(Combined)	12.246	4	3.061	1.274	.283	**H0: Accepted**
	Within Groups		372.529	155	2.403			
	Total		384.775	159				

Summary: The ANOVA results indicate that there are no statistically significant differences between the groups defined by "employment" for any of the variables

Null Hypothesis (Ho): There is no association between income and disposal method

Table 13: ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.	Hypothesis
Personal computers * income	Between Groups	(Combined)	17.922	3	5.974	1.034	.379	**H0: Accepted**
	Within Groups		901.678	156	5.780			
	Total		919.600	159				
laptops * income	Between Groups	(Combined)	22.059	3	7.353	1.603	.191	**H0: Accepted**
	Within Groups		715.716	156	4.588			
	Total		737.775	159				
Mobiles * income	Between Groups	(Combined)	10.784	3	3.595	.634	.594	**H0: Accepted**
	Within Groups		884.816	156	5.672			
	Total		895.600	159				
Tabs * income	Between Groups	(Combined)	24.242	3	8.081	1.417	.240	**H0: Accepted**
	Within Groups		889.733	156	5.703			
	Total		913.975	159				
Television * income	Between Groups	(Combined)	12.153	3	4.051	1.696	.170	**H0: Accepted**
	Within Groups		372.622	156	2.389			
	Total		384.775	159				

Summary: The ANOVA results show no significant differences in the means of any of the variables across different income groups.

Findings and Suggestions

Findings

- The demographic data of respondents Out of 160 respondents 62.5% of respondents are the male respondents 37.5% of respondents are female. Education is one of the essential tools for raising awareness, especially in developing countries [40]**.** According to the results Most of the respondent consumers are completed their post-graduation, they are married and living with four family members in their houses.
- **Usage of electronic equipments:** The respondents were asked to select the electronic devices they use. 94% reported using mobile phones. The list included eight devices: televisions, personal computers, laptops, tablets, mobile phones, washing machines, air conditioners, and refrigerators. These devices were grouped into categories: "At least 1," "At least 3," "At least 5," and "All." As shown in Figure 4.2, 69% of respondents use at least 5 of these devices, while only 40% use all of them. A very small proportion, 0.5%, use at least 1, and none selected "at least 3."
- The study shows that the main sources of information about e-waste are the Internet, friends, TV, and user manuals.
- Only 25% of consumers properly dispose of their e-waste, while 16.3% donate it to friends and family. A large number of people (34%) store e-waste at home, and some throw it out with household trash.
- The study reveals distinct e-waste disposal practices based on demographic preferences. Marital status significantly influences television disposal, with married individuals more likely to engage in proper e-waste management for TVs, while it shows no impact on personal computers, laptops, mobile phones, or tablets. Age is another key factor, with older respondents demonstrating significant differences in the disposal of laptops, mobile phones, and televisions, but showing no effect on the disposal of tablets and personal computers. However, no significant differences in e-waste disposal practices are found across income, employment status, family size, residence, or education levels. This suggests that while marital status and age influence specific device disposal behaviors, other demographic factors do not significantly impact consumer e-waste practices.
- About 45% of consumers are unaware of e-waste management policies in India. Many believe that a lack of awareness about the harmful effects of e-waste is the biggest barrier to proper management.
- As a result, 95% of respondents are willing to pay more for eco-friendly products.
- The cost of repairing a product compared to replacing it is a key factor in deciding whether to fix or discard it. Many people sell e-waste to scrap dealers for a small price, and regular waste collectors often mix e-waste with regular garbage. Most respondents are aware of the dangers of improper e-waste handling, especially the harmful chemicals in electronics.

Suggestions

Waste minimization is a key principle that must be researched, tested and implemented in terms of sustainability. Most of the respondents are graduates and post graduates, if provide awareness campaigns, households felt that facilities are not available to discard e-waste, if local authoritative bodies provide those resources; they are willing to dispose them properly. People should be educated and should be increase recycling centers for recycling otherwise after some days due to e-waste our future generation will suffer. These are not only options for solving local problems, but also suitable for solving global e-waste problems.People are replacing electronic products quickly due to higher income, standard of living and professional requirement. In case of any damage, return the item to the store. If you upgrade your technology; sell your unused old product on platforms like OLX or eBay, which are great places to sell.

Municipal Corporations are suggested to collect, treat, store and disposal service of e-waste and set the goal of e-waste free city to reduce e-waste. Based on previous studies, the incentive system will promote consumers' participation, which is one of an important factor in e-waste management. Recycling centers are required to minimize the waste and government is suggested to setup at least one recycling center, where huge production of e-waste occurs.

Conclusion

The study highlights insufficient consumer awareness and practices regarding e-waste management. While separating e-waste is crucial for reducing environmental harm, gaps remain despite governmental regulations and awareness efforts. The findings emphasize the need for better infrastructure, operational assessments, and expanded initiatives to address these challenges. Although general awareness is relatively high, there is a lack of knowledge about proper disposal methods, collection centers, and regulations, leading to improper handling. Promoting a culture of reuse, repair, and recycling across the e-waste supply chain is essential. Key strategies include advanced product tracking, take-back models, and improving recycling efficiency. Additionally, effective promotion of disposal facilities is crucial for guiding consumers towards proper e-waste disposal practices.

Scope for Further Research

This paper explores the factors influencing consumer awareness and preferences for proper e-waste disposal and management. Future research could empirically analyze the relationships between these awareness factors and examine the role of demographics such as age, income, gender, and education in shaping consumer behavior. As the study was limited to Vizag, expanding research to other regions in India is essential to enhance the study's reliability and validity.

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EVALUATING FINANCIAL OUTCOMES OF BANK MERGERS: A CASE STUDY OF PUNJAB NATIONAL BANK, ORIENTAL BANK OF COMMERCE AND UNITED BANK OF INDIA

Kanchan Pareek*

ABSTRACT

Mergers in the Indian banking sector have become a vital strategic tool for consolidating financial institutions, strengthening capital bases, enhancing financial stability, and facilitating geographic and financial growth. This study examines the financial performance of the merger involving Punjab National Bank (PNB), Oriental Bank of Commerce (OBC), and United Bank of India (UBI), effective from April 1, 2020. The research evaluates pre- and post-merger performance using key financial ratios such as Net Profit Margin, Operating Profit Margin, Return on Net Worth, Return on Assets, Return on Capital Employed, Current Ratio, Quick Ratio, Earnings Per Share, and Dividend Per Share. A paired t-test, conducted through MS Excel, was employed to assess the statistical significance of the observed changes in profitability, liquidity, and market position. The results indicate that while the merger aimed to achieve financial and operational synergies, there was no statistically significant improvement in the financial position, liquidity, or market standing post-merger. The analysis revealed only marginal variations in the examined financial metrics, suggesting that the merger's transformative impact on financial performance may require a longer time frame to materialize. This study underscores the complexities of achieving immediate financial gains through banking sector mergers in a dynamic and competitive environment like India. It highlights the importance of effective post-merger integration, operational efficiency, and robust risk management in realizing the intended strategic benefits. These findings provide valuable insights into the financial implications of mergers and offer a foundation for evaluating their success in achieving long-term objectives.

***KEYWORDS**: Risk Management, Return on Net Worth, Financial Performance, Bank Mergers, Profitability.*

Introduction

Indian economy has faced several changes throughout the decades. It is known for its perseverance, over the years it has witnessed continuous fluctuation, global economic depression and recent reforms of the government with ease. The banking system is one among the prominent indicators of an economy. It is considered as the lifeline of an economy. The banking sector plays a crucial role in every economy and stands out as one of the fastest-growing industries in India. Indian banking sector has its own reputation in the global world. The Indian banking system is vital to the nation's economic growth and development. It is also among the fastest-growing and most dynamic sectors in the

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country.The banking system in India has beyond any doubt various outstanding achievement, Within a relatively short span, it has achieved remarkable progress in the world's largest and most diverse democracy. The banking system in any nation must be both effective and efficient, as it holds a critical position in driving the country's economic growth. Intense competition within the banking sector highlights the significance of mergers and acquisitions. Despite the fierce challenges posed by multinational corporations, Indian banks are navigating this competition through strategic mergers and acquisitions.

Mergers and acquisitions have emerged as a widely embraced trend within the Indian banking sector. Numerous banks across the country actively engage in such activities. The primary goal of these mergers and acquisitions is to achieve the advantages associated with economies of scale.

Merger and acquisition are adopted by government for not only to increase the profits of public sector banks, but it also saves the banking company which is facing huge losses while carrying out merger and acquisition banks have to face many challenges as well. But in today's global world merger have become the means for long term survival. Mergers hold significant importance in driving economic growth, particularly in economies that are relatively stagnant and facing considerable uncertainty.

The purpose of a merger is to foster the company's growth. This growth can be accelerated by enhancing profitability through improved production processes and the efficient delivery of goods and services, while also expanding the business's operational scope. Additional objectives of mergers and acquisitions include achieving economies of scale, diversifying operations, gaining tax advantages, reducing competition, acquiring specific assets, lowering advertising costs, fostering corporate goodwill, eliminating hostility, reaching desired levels of integration, improving liquidity, boosting market share, enhancing customer satisfaction, securing supplies, accessing advanced production technologies and expertise, and liquidating outdated or surplus assets for cash flow within the merged entity.

Literature Under Review

Prajeesh P.and Dr. Kavitha S .(2020) in the paper "A STUDY ON THE CONSOLIDATION AND MERGER OF PSB's IN INDIA: ISSUES AND CHALLENGES – WITH SPECIAL REFERENCE TO PNB, OBC, UNITED BANK" opined that, "merger of banks is not an easy job with regards to management, accounts, marketing policies and infrastructure etc. Merger of banks will be successful only when issues of corporate governance, Structural issues are resolved."

Dr Anshu Choudhary, Dr.Neha Vashistha(2020) ,conducted a study named "A STUDY OF AMALGAMATION OF ORIENTAL BANK OF COMMERCE AND UNITED BANK OF INDIA INTO PUNJAB NATIONAL BANK". The study revealed that, "the merger of three banks seems to be a value creator. After this merger Punjab National Bank will become the second largest public sector bank in India. This merger will have a significant impact in making our nation $5 trillion economy. Because after this merger bank's lending capacity, market share will increase and this will improve their service delivery."

Pooja Sree Pombarla(2020) revealed in her study "RESTRUCTURING THROUGH MERGERS- A CASE STUDY ON MEGA MERGER OF BANKS 2020" expressed that, "mega merger of banks will reduce the cost of operating banking business and improve liquidity position due to economies of scale and this will result in the savings and higher profits. The burden on central government to recapitalize the public sector banks will be less and it will be easier for government to monitor and control a smaller number of banks."

Sandeepa K. and Santhosha (2020) in the research paper "EMERGING TRENDS IN BANKING SECTOR : ANALYTICAL STUDY ON MERGER OF PUNJAB NATIONAL BANK, ORIENTAL BANK OF COMMERCE AND UNITED BANK OF INDIA" opines that, "merger of public sector banks and capital infusion to banking sector will bring stability in public sector as well as economy. It helps to cover large area as well as scattered population. This will result in optimum utilization of deposits and effective disbursement of funds, reduction in NP and risking lending. It will also have a positive impact on economic growth of the country."

Mohmmad Mubarak (2021) in the research paper titled "RECENT MERGERS IN BANKING SECTOR – AN INDIAN SCENARIO" Concluded that, "new bank's net profit will decrease and stability of bank is uncertain. If the status of both the bank is not equal then merging will help the smaller bank to improve. A single bank would be exposed to instable and unexpected system risk. Failure of one bank would lead to failure of banking sector."

Dr. T. Christy (2021) in the study "MERGER OF PUBLIC SECTOR BANKS IN 2020-AN

OVERVIEW" explained that, "the mega merger of public sector bank by the central government of India was a needed action to strengthen the banking sector and after this our nation will have a wider reach and global presence for international trade. Some other positive impacts are reduced geographical concentration risk, increased ability to deal with external shocks, greater capacity to invest in technology etc."

Ishwarya J.(2019) in the paper "A STUDY ON MERGERS AND ACQUISITION OF BANKS AND A CASE STUDY ON SBI AND ITS ASSOCIATES" revealed that, "merger of SBI and associate banks have no greater change in profitability ratio. Some banks are satisfactory but in some banks performance is declined during the study period. Merger led to reduction in cost and it will result in increase in profit in future. Study also revealed that merger resulted in protection of interest of depositors of weak banks but stakeholders with the weak banks did not achieve any gain from merger."

Objectives

- To analyze the profitability of Punjab National Bank before and after the merger.
- To assess the financial performance of Punjab National Bank in the pre- and post-merger phases and its influence on the Indian economy.
- To identify the key factors impacting the performance of Punjab National Bank during the pre- and post-merger periods.
- To propose measures and strategies for improving the performance of Punjab National Bank.

Research Gap

Many studies have examined mergers and acquisitions in the banking sector and corporate world. However, this study specifically investigates the recent merger of Punjab National Bank with Oriental Bank of Commerce and United Bank of India. The analysis is based on key financial ratios such as Net Profit Margin, Operating Profit Margin, Return on Net Worth, Return on Assets, Return on Capital Employed, Current Ratio, Quick Ratio, Earnings per Share, and Dividend per Share. A paired t-test is applied to determine the t-value and significance using MS Excel. While earlier research has focused on this merger, it has overlooked the financial performance aspect, with a study period limited to just one year. In contrast, this research utilizes data spanning six years—three years prior to the merger and three years following it.

Methodology

This study analyzes six years of annual data to assess the performance of the banks before and after the merger. The pre-merger period spans from 2016-17 to 2018-19, while the post-merger period covers 2020-21 to 2022-23 for Punjab National Bank, United Bank of India, and Oriental Bank of Commerce. The research is based on secondary data obtained from the financial annual reports of the three banks, along with information from relevant websites. Financial performance is evaluated using key ratios, including Net Profit Margin, Operating Profit Margin, Return on Net Worth, Return on Assets, Return on Capital Employed, Current Ratio, Quick Ratio, Earnings per Share, and Dividend per Share. To determine the significance of the results, a paired t-test is employed using MS Excel.

Hypothesis

H_{01} : There is no significant impact of merger and acquisition on Profitability of Punjab National Bank.

H_{02}: There is no significant impact of merger and acquisition on Liquidity of Punjab National Bank.

H_{03}: There is no significant impact of merger and acquisition on Market position of Punjab National Bank.

Data Analysis and Interpretation

Table 1: Profitability Ratios of PNB, OBC and UBI (Pre Merger)

Ratios	PNB						OBC			UBI		
	2019	2018	2017	Avg	2019	2018	2017	Avg	2019	2018	2017	Avg
Net Profit Margin	-19.44	-25.59	2.80	-14.07	0.30	-33.74	-5.93	-13.12	-27.05	-17.43	2.32	-14.053

Operating Profit Margin	-33.81	-44.09	-16.13	-31.34	-14.63	-49.73	-20.95	-28.43	-54.91	-43.98	-20.86	-39.916
Return on Net worth	-24.20	-32.85	3.47	-17.86	0.31	-56.55	-8.63	-21.62	-21.89	-18.85	3.41	-12.443
Return on Assets	-1.28	-1.60	0.18	-0.9	0.02	-2.51	-0.43	-0.97	-1.52	-1.00	0.15	-0.79
Return on Capital Employed	1.70	1.38	2.06	1.71	1.41	1.61	1.68	1.57	0.94	0.72	1.13	0.93

Chart 1: Profitability Ratios of PNB, OBC and UBI (Pre Merger)

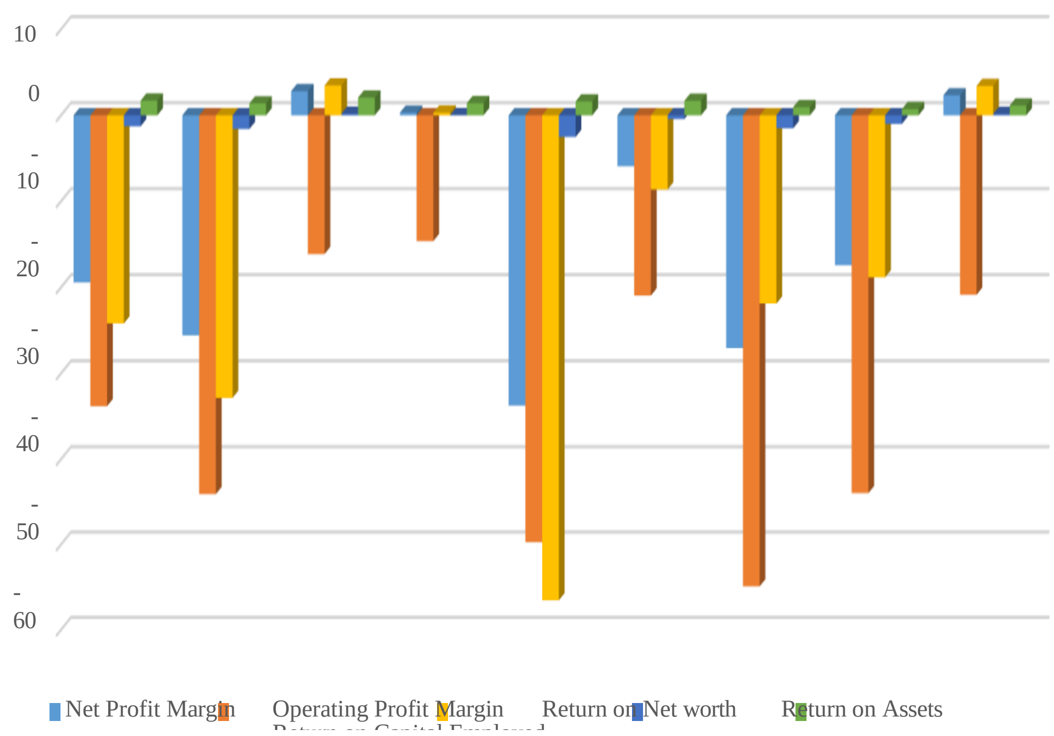
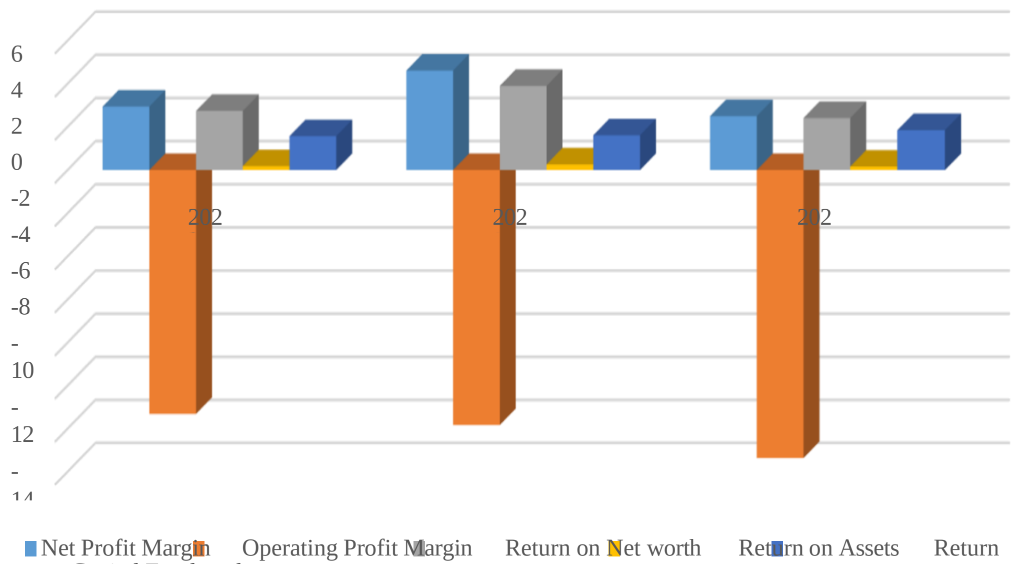


Table 2 : Profitability Ratios of PNB (Post Merger)

Ratio	2023	2022	2021	Average
Net Profit Margin	2.94	4.61	2.5	3.35
Operating Profit Margin	-11.31	-11.83	-13.36	-12.17
Return on Net worth	2.74	3.90	2.41	3.07
Return on Assets	0.18	0.26	0.16	0.2
Return on Capital Employed	1.57	1.61	1.85	1.68

Chart 2: Profitability ratio of PNB (Post merger)



Interpretation of Profitability Ratios

- Average Net Profit ratio before merger is -14.07% for Punjab National Bank where as it is -13.52% for Oriental Bank of Commerce and for United Bank of India it is -14.0533%. The Net profit ratio for Punjab National Bank after merger is 3.35%. This clearly depicts that the level of earnings is increased in 2023 by minimising the unnecessary expenses.
- Average Operating Profit ratio before merger is -31.34% for Punjab National Bank where as it is - 28.42% for Oriental Bank of Commerce and for United Bank of India it is -39.9167%. The Average Operating profit ratio for Punjab National Bank after merger is -12.17%. It clearly expresses that the efficiency of the bank is improving by reducing the unnecessary expenses such as NPA and other retirement benefits which improves the level of earnings and improve the operating profit ratio.
- Average Return on Net Worth before merger is -17.86% for Punjab National Bank where as it is - 21.62% for Oriental Bank of Commerce and for United Bank of India it is -12.443%. The Average Return on Net Worth ratio for Punjab National Bank after merger is 3.07%. It signifies that bank utilises the money taken from shareholders in an efficient manner.
- Average Return on Assets before merger is -0.9% for Punjab National Bank where as it is -0.97% for Oriental Bank of Commerce and for United Bank of India it is -0.79%. The Average Return on Assets ratio for Punjab National Bank after merger is 0.2%. This ratio evaluates the efficient utilisation of total assets deployed by organisation in comparison to revenue generated by the organisation. This ratio has improved in post-merger period which clearly shows that the bank has utilised the assets efficiently to generate revenue.
- Average Return on Capital Employed before merger is 1.71% for Punjab National Bank where as it is 1.57% for Oriental Bank of Commerce and for United Bank of India it is 0.93%. The Average Return on Assets ratio for Punjab National Bank after merger is 1.68%. Return on Capital Employed depicts the company's profitability in terms of all of its capital. This ratio shows the mix trend in pre and post-merger period.

H_0: There is no significant impact of merger and acquisition on Profitability of Punjab National Bank

Profitability Ratios of the Punjab National Bank in Pre and Post Merger

Ratios	Pre Profitability Ratios	Post Profitability Ratios
Net profit margin	-14.07	3.35
Operating profit margin	-31.34	-12.17
Return on net worth	-17.86	3.07
Return on Assets	-0.9	0.2
Return on Capital Employed	1.71	1.68

Paired t-test of the Profitability Ratios of the Punjab National Bank

	Pre Profitability Ratios	Post Profitability Ratios
Mean	-12.492	-0.774
Variance	180.656	42.15583
Observations	5	5
Pearson Correlation	0.669753	
Hypothesized Mean Difference	0	
df	4	
t Stat	-2.546	
P(T<=t) one-tail	0.031787	
t Critical one-tail	2.131847	
P(T<=t) two-tail	0.063575	
t Critical two-tail	2.776445	

Interpretation

Overall Profitability position in case of Indian banking system is determined on the basis of these five ratios – Net profit ratio, Operating Profit Ratio, Return on Net worth, Return on Assets and Return on Capital Employed. When t test were applied to these parameter, the calculated t value -2.546 of these parameter were less than the critical t value 2.776445 and p value 0.063575 of these factors were less than 0.05 which indicates that H_1 is rejected in the favour of H_0 and the difference between means was not significant.

Table 3: Liquidity Ratios of PNB, OBC and UBI (Pre Merger)

Ratios	PNB				OBC				UBI			
	2019	2018	2017	Avg	2019	2018	2017	Avg	2019	2018	2017	Avg
Current Ratio	0.05	0.05	0.05	0.05	0.06	0.05	0.07	0.06	0.09	0.08	0.06	0.077
Quick Ratio	35.12	22.71	28.56	28.79	29.59	35.30	36.89	33.92	30.18	22.97	21.07	24.74

Chart 3 : Liquidity ratio of PNB, OBC and UBI (Pre merger)

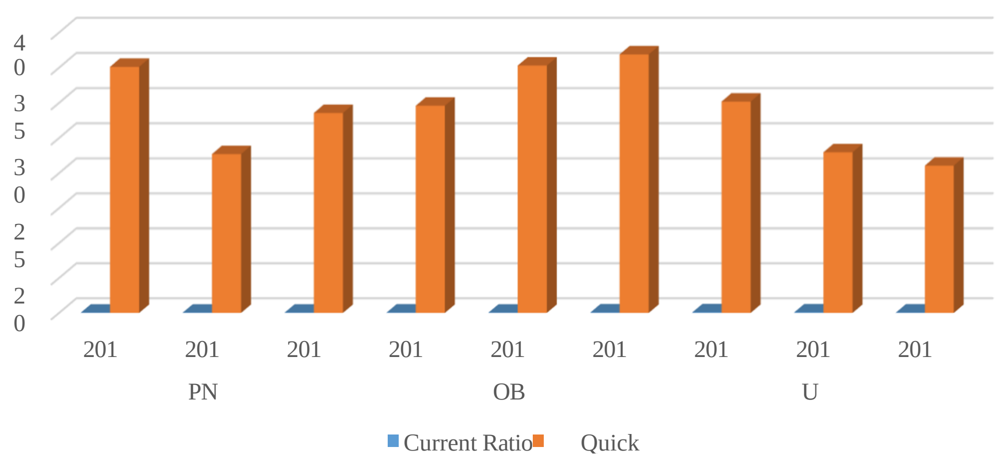
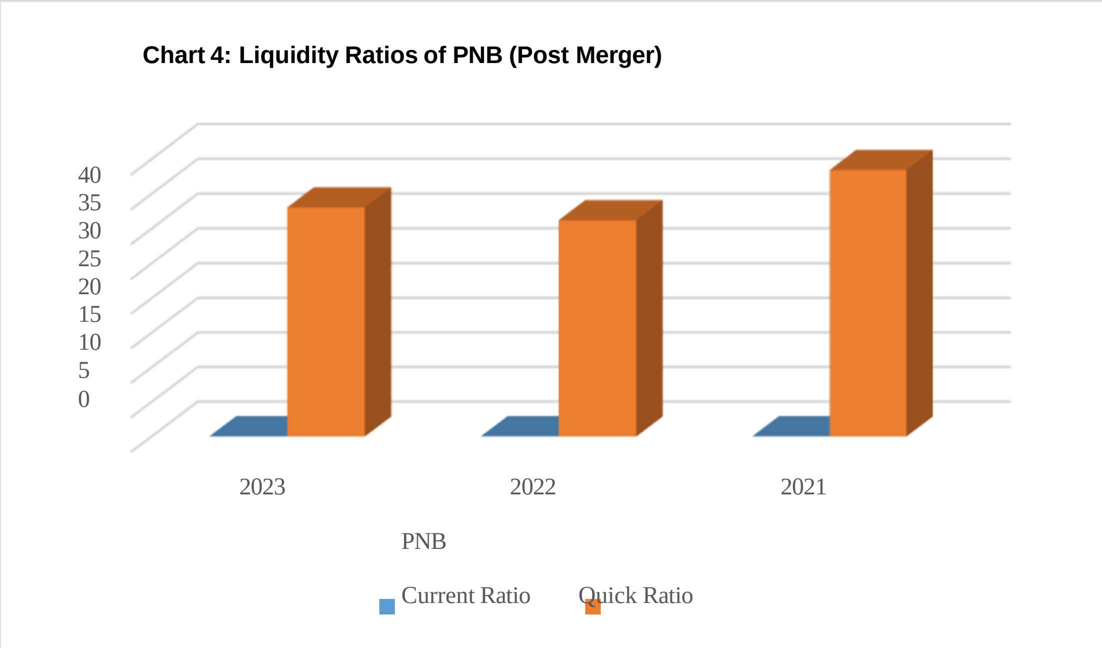


Table 4: Liquidity Ratios of PNB (Post Merger)

Ratios	PNB			
	2023	2022	2021	Avg
Current Ratio	0.05	0.06	0.06	0.057
Quick Ratio	33.06	31.22	38.44	34.24



Interpretation of Liquidity Ratio

- Average Current Ratio is 0.05 times for Punjab National Bank in pre-merger period where it is 0.06 times for Oriental Bank of Commerce and 0.077 times in case of United Bank of India. Post-merger ratio is .057 times for Punjab National Bank. Decline in current ratio helps in assessing the paying capacity of short-term obligation during a normal tenure of banking company.
- Average Quick Ratio is 28.79 times for Punjab National Bank in pre-merger period where as it is 33.92 for Oriental Bank of Commerce and 24.74 in case of United Bank of United bank of India. Post merger ratio is 34.24 times for Punjab National Bank. Increase in Quick ratio indicates the bank's capacity to pay off its short-term obligation has been increased.

H_0: There is no significant impact of merger and acquisition on Liquidity of Punjab National Bank.

Liquidity Performance of Punjab National Bank in before and after merger period:

Ratio	Pre Liquidity Performance	Post Liquidity Performance
Current Ratio	0.05	0.057
Quick Ratio	28.79	34.24

Paired t- test of the Liquidity Ratios of the Punjab National Bank in Before and after merger

	Pre Profitability ratios	Post Profitability ratios
Mean	14.42	17.1485
Variance	412.9938	584.2387
Observations	2	2
Pearson Correlation	1	
Hypothesized Mean Difference	0	
df	1	

t Stat	-1.00257	
P(T<=t) one-tail	0.249591	
t Critical one-tail	6.313752	
P(T<=t) two-tail	0.499182	
t Critical two-tail	-1.00257	

Interpretation

Overall Liquidity position in case of Indian banking system is determined on the basis of these two ratios –Current ratio and Quick ratio. When t test was applied to these parameter, the calculated t value -1.00257 of these parameter were less than the critical t value -1.00257 and p value 0.499182 of these factors were less than 0.05 which indicates that H_1 is rejected in the favour of H_0 and the difference between means was not significant.

Table 5: Market Test Ratio of PNB, OBC and UBI (Pre Merger)

Ratio	PNB				OBC				UBI			
	2019	2018	2017	Avg	2019	2018	2017	Avg	2019	2018	2017	Avg
EPS	-30.94	-55.39	6.45	-26.63	0.77	-168.09	-31.82	-66.38	-7.04	-9.65	1.86	-4.94
DPS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

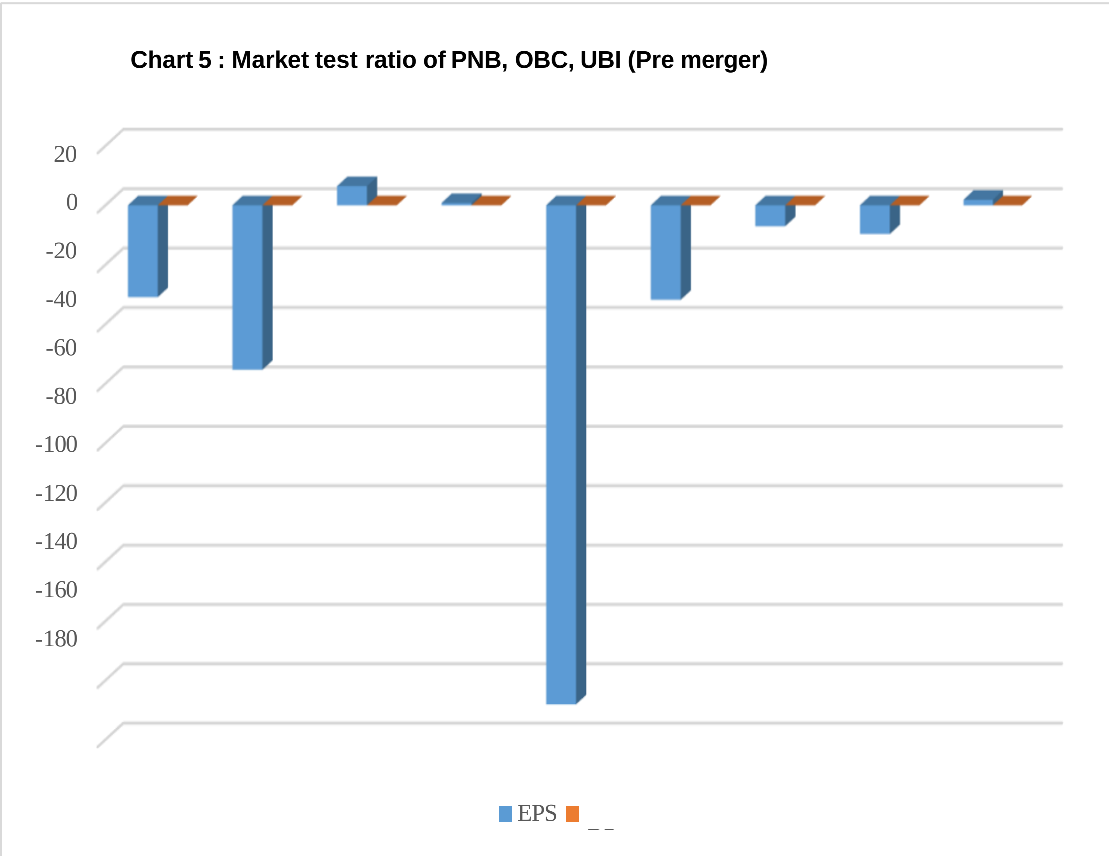


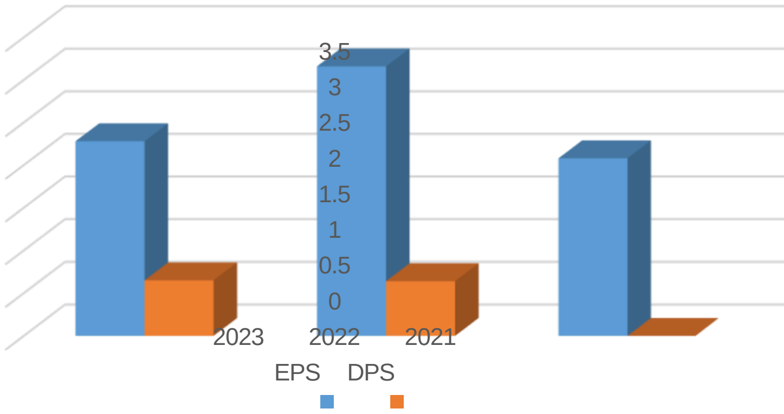
Chart 5 : Market test ratio of PNB, OBC, UBI (Pre merger)

2019	2018	2017	2019	2018	2017	2019	2018	2017
	PNB			OBC			UBI	

Table 6: Market Test Ratios of PNB (Post Merger)

Ratio	2023	2022	2021		Avg
EPS	2.28	3.16	2.08		2.51
DPS	0.65	0.64	0.00		0.43

Chart 6 : Market test ratio of PNB (Post Merger)



Interpretation of Market Test Ratio

- Average Earning per share is Rs. -26.63 for Punjab National Bank in pre- merger period where as it is Rs. -66.38 in case of Oriental Bank of Commerce and Rs. -4.94 in case of United Bank of India. Post merger Ratio is Rs. 2.51. This ratio helps in determining the market price of share of equity in nature. This ratio increased after merger which means that bank is generating good amount of earnings and it also raise the market price of shares.
- There has been no dividend paid in pre-merger period by any of the bank because Earning per share is a negative value of all three banks. That is why it is 0 in pre-merger period. But in post-merger period the average dividend per share is Rs. 0.43. It has been increased after merger because of rise in earnings and equity shareholders have good amount of earnings that are distributable in form of dividend.

H_0: There is no significant impact of merger and acquisition on Market position of Punjab National Bank

Ratio	Pre-Liquidity Performance	Post-Liquidity Performance
EPS	-26.63	2.51
DPS	0.00	0.43

Paired t- test of the Market test Ratios of the Punjab National Bank in Before and after merger

	Pre Profitability ratios	Post Profitability ratios
Mean	-13.315	1.47
Variance	354.5785	2.1632
Observations	2	2
Pearson Correlation	-1	
Hypothesized Mean Difference	0	
df	1	
t Stat	-1.02995	
P(T<=t) one-tail	0.245303	
t Critical one-tail	6.313752	
P(T<=t) two-tail	0.490606	
t Critical two-tail	12.7062	

Interpretation

Overall Market position in case of Indian banking system is determined on the basis of these two ratios –Earning per share and Dividend per share. When t test were applied to these parameter, the calculated t value -1.02995 of these parameter were less then the critical t value 12.7062 and p value 0.490606 of these factors were less than 0.05 which indicates that H_1 is rejected in the favour of H0 and the difference between means was not significant.

Conclusion and Suggestion

The research was performed to test whether the merger of Punjab National Bank was proved to be beneficial or not for the Indian banking sector. The case of Punjab National Bank was examined. The evaluation was made in terms of profitability, asset utilization, solvency, operational efficiency, liquidity and market position.

The profitability ratio analysis revealed improvements in the average Net Profit Margin, Operating Profit Margin, Return on Assets, and Return on Net Worth following the merger. However, the trend in Return on Capital was mixed. Despite these improvements, a t-test indicated that the changes were statistically insignificant.

Similarly, liquidity ratio analysis showed an increase in the Current Ratio and Quick Ratio in the post-merger period for Punjab National Bank. Nevertheless, a t-test revealed that these improvements were not statistically significant.

To assess the market position of Punjab National Bank, Earnings per Share and Dividend per Share ratios were examined. Both ratios showed growth after the merger, but the t-test results suggested that the increases were insignificant.

The results of this study suggest that nationalized commercial banks should consider mergers with stronger commercial banks and finance companies to benefit from economies of scale, cost efficiency, and improved competitiveness. However, the study indicates that merging with smaller banks does not yield significant benefits.

A limitation of this study is its focus on a three-year period before and after the merger. The true long-term impact of the merger on the financial performance of Punjab National Bank will be clearer over time. Future research should employ a longer time frame to assess the overall effects of mergers, utilizing both qualitative and quantitative data.

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ANALYSIS OF NON-PERFORMING ASSETS OF INDIAN PRIVATE SECTOR BANKS

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ABSTRACT

In the current scenario banking industries serves as the foundation of any nation's economy. Every Country's growth depends on a sound and wealthier banking system. The primary metric used to assess how well the banking system is performing is depending upon the NPAs. Non-Performing Assets (NPAs) are a major concern for the stability and profitability of Indian private sector banks, as they directly affect the financial health and operational efficiency of these institutions. An NPA is a loan or advance for which the principal or interest payment has remained overdue for a specified period, typically 90 days or more. The persistence of high NPAs in private banks can lead to a decrease in their lending capacity, impaired asset quality, and erosion of capital buffers. The growth of NPAs is the major concern for Indian banking system because it is adversely impacting the financial performance of the bank. In this context this study strives to assess the Gross NPAs of four Indian private sector banks. This research paper aims to provide a comprehensive analysis of the trends, causes, and consequence of NPAs Indian private sector banks, with a focus on their evolution and find if there is any significant difference among them through use of charts and statistical tools. The basis of the research is secondary data that has been collected from RBI website & annual reports of selected banks and the period of study is 6 year (2017-18 to 2022-23). The paper concludes with recommendations for improving NPA management, including enhancing credit risk assessment models, adopting more robust corporate governance practices, and leveraging technological innovations in credit monitoring. Ultimately, it suggests that effective NPA management is crucial for the long-term stability of Indian private sector banks and for sustaining investor confidence in the banking sector.

***KEYWORDS**: Gross NPAs, GNPA Ratio, Indian Private Sector Banks, Anova.*

Introduction

In recent years, there has been an enormous development in the banking industry in India. The liberalization, privatization, and globalization (LPG) era that began in 1991 brought about a number of swift changes to the Indian banking sector. The correlation between bank performance and the economy is expected to be strong and positive. Banks are very important institution that influence a country's economic growth and serve as significant institutions that shape the hopes and aspirations of the general public. They are key drivers of economic growth.

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In the current situation, Non-Performing Assets (NPAs) are the central issue causing financial problems for banks. It is crucial to take substantial measures to enhance the recovery performance. The primary causes of the rising NPAs include a goal-driven approach that undermines the quality of credit of banks, intentionally fails to repay of loans, insufficient oversight of borrowers account, and absence of technical efficiency and follow by bank. The NPAs figure in the banking sector is increasing. Greater NPA will affect the interest rates and loan prices, which will impact the investor, lender, and depositor confidence. Higher interest rates have a direct effect on investors who require loans to create corporate and business projects, but they also result in poor fund recovery, which has an influence on the capacity of financial institutions to extend credit and generate income. The inability to repay debts has an impact on the issuance of credit and ultimately impacts the stability of an economy's finances. Thus, a bank's ability to manage its non-performing assets (NPAs) and keep them under the acceptance level will determine its success.

Non-Performing Assets (NPA)

According to an RBI circular from 2007, "An asset becomes non-performing when it fails to generate revenues for the bank."

The 90-day overdue standard for identifying NPAs was introduced by the RBI for the purpose to better align with global practices. A borrower's account is classified as NPAs in the following situations:

- The principle and late interest on a period loan are not paid after more than 90 days.
- The borrower's loan remains "Out of order" for more than 90 days in the event of an OD/CC.
- If a bill is purchased and discounted, it is overdue for a period longer than ninety days.
- In Agricultural loan both interest and principal amount outstanding for 2 cropping seasons for short period harvest or 1 cropping season for long period harvest.
- In case any sum outstanding for other accounts is not paid within a period of 90 days.

In summary, an asset becomes categorized as NPAs whenever it meets any of the above criteria, signifying that it is not performing as per the agreed terms and has become delinquent.

There is two metrics determine the number of NPAs.

- **GNPA:** GNPA denotes the absolute figure of NPA over a quarter or a fiscal year. It is the total of the principal plus interest that has been accrued.
- **NNPA:** NNPA subtracts the bank's provision from Gross NPA. It is the precise amount of NPA afterwards the bank's specific provision.

Review of Literature

"Chary and Fasi (2019) conduct an analysis on "Non-Performing Assets in public sector banks – A study" they examined the recent net profits of all selected Indian public banks & gross and net NPAs ratio for a sample of 10 year they conclude that selected Indian public sector banks are significantly suffering by NPAs as a performance barrier. The analysis also shows that although banks regularly offer advances but they are unable to carry out their obligations when it comes to collecting debts. It could be because bank branches have less power and higher authorities are occasionally transferred from one branch to another branch and due to the negligence but the overall positions indicate that NPA are seriously impacting the performance of Indian banking system."

"Kaur and Saddy (2011) analysis on "Non-Performing Assets: A Study of Public and Private Sector banks". They examined that India's banks have long been concerned about non-performing assets (NPAs). The banks are not the only ones affected the whole economy is negatively impacted. Banks' bottom lines suffer as a result of the money held in NPAs, which is not accessible for productive use. Public sector banks have a somewhat higher percentage of NPAs. The NPAs must be scheduled in order to increase productivity and profitability. The administration has implemented a number of measures to lower the NPAs. The amount of NPAs in the Indian banking industry has decreased as a result of this. However, much more work has to be done. Our banks' non-performing assets (NPAs) remain elevated in relation to global benchmarks. To have zero percent NPAs is quite impossible. To preserve international standards, Indian banks can, at the very least, attempt to compete with global banks. There is no denying that a portion of the drop in non-performing assets (NPAs) has been attributed to bank write-offs of NPAs. Since prevention is always preferable to treatment, so banks needs to be careful while lending funds."

“Malyadari and Sirisha (2011) over the course of the investigation, further advancements have been seen, according to the report. However, the drop in the NPA ratio shows that both Indian sector banks have improved asset quality. The investigation has shown that public sector banks in India are now handling NPAs with much greater efficiency. The analysis concludes by noting that effective regulation and standard provisions as well as other regulatory body initiatives have put pressure on banks to increase performance, which has reduced NPA and improved performance stability of the banking sector of India.”

“In their analysis, **Mohnani and Deshmukh (2013)** found that PNB's gross non-performing asset ratio is lower than SBI's and has been declining over time. ICICI is not as successful as HDFC when it comes to private banks. Therefore, it’s extremely important for banks to maintain the lowest NPA level which is below the standard level because nonperforming assets hinder banks growth and adversely effect on the bank’s performance.”

“Roy and samanta (2017) study on “The analysis of non-performing assets in public sector banks of India”. The GNPA study conducted for this article demonstrates that all banks' total NPA status has been worse over time. This has now become a serious worry because there isstrong negative link between Gross NPAs and net profit, net profit decreasing slowly as gross NPAs increasing. In the banking sector in 2015-2016, profits of most institution decreased significantly. Some banks lost money Also. Losses due to increase in NPAs cannot be avoided simply by making provisions against NPAs. Making safeguards against NPAs is not enough to prevent losses resulting from a rise in NPAs. All selected PSBs Lending banks need to be careful to take context into account of borrowers and making recovery procedures more stringent. In addition, transparency in information disclosure Standards must be strictly followed by banks to maintain investor confidence.”

“Tiwari ‘et al’ (2013) conducts a study on “NON PERFORMING ASSETS–A CAUSE OF CONCERN FOR BANKS”. They observed that NPAs serve as an indicator of banks’ overall performance. A high percentage of non-performing assets indicates a higher probability of multiple financial fail to pay, which can negatively affect the bank’s profitability and liquidity. Managing NPA growth requires making provisions, which in turn lowers overall profits and shareholders’ value. Branch managers must exercise due diligence and utmost caution when approving loans for clients. Essential steps such as selecting suitable borrowers, identifying viable economic activities, ensuring sufficient financing and prompt disbursement, verifying the appropriate use of funds, and ensuring timely loan recovery are indispensable prerequisites for preventing or minimizing the occurrence of new NPAs. By adhering to these measures, banks can bolster their credibility and achieve the objectives of a well-established financial system.”

Objective of the Study

- To understand non-performing assets as a concept and as different kinds in the Indian banking sector.
- To examine and evaluate the GNPA positions and trends of particular banks in private sector.
- To examine the GNPA ratio of particular banks in private sector.
- To try to determine whether the GNPA ratios of a few chosen private sector banks differ significantly from one another.

Hypothesis

Null Hypothesis: There won’t be any significant difference in GNPA ratio (Gross Non-performing assets/ total advance) within the chosen private banks between the years 2017-18 to 2022-23.

Alternate Hypothesis: There will be significant difference in GNPA ratio (Gross NPA/ total advance) within the chosen private banks between the years 2017-18 to 2022-23.

Research Methodology

For this study we have consider gross NPA of chosen private banks which are include in the 2nd schedule of the RBI Act. The sample is four top most Indian private banks. The secondary data used in the study and secondary data was gathered from RBI website and the yearly reports of chosen banks. The analysis uses overall collected data of six years, from 2017–18 to 2022–2023. The researcher has used multiple article and research paper. The theoretical structure of non-performing assets is examined in the article, along with the status and movements of gross NPAs of chosen private banks. Charts and tables were used by researcher to compare the gross NPA, total advance and GNPA ratio of banks and try to find whether there were any statistically significant variations in Gross NPAs ratio within chosen private banks by using ANOVA.

Analysis and Interpretation

The GNPA, total advance and GNPA ratio of four selected Indian private banks are taken for the 6 year from 2017-18 to 2022-23.

Gross Non- Performing Assets Positions of Banks

Table 1: Gross NPA

(in cr.)

Year\Bank	Hdfc	Icici	Axis	Indusind
2017-18	8606.97	53240.18	34248.64	1704.91
2018-19	11224.16	45676.04	29789.44	3947.41
2019-20	12649.97	40829.09	30233.82	5146.74
2020-21	15086	40841.42	22681.69	5794.99
2021-22	16140.96	33294.92	18565.63	5517.15
2022-23	18019.03	29986.07	17019.09	5826.27

Source: RBI reports and annual reports of selected banks

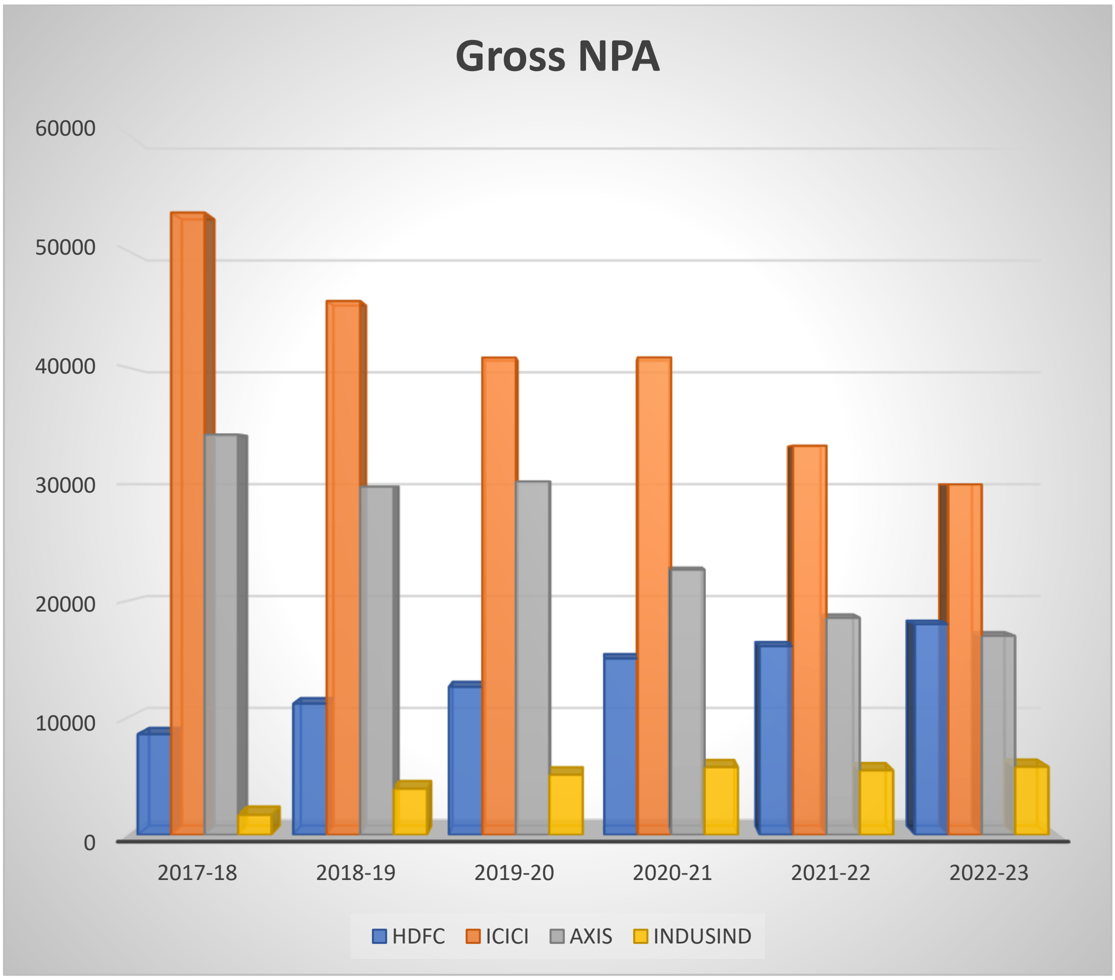

Chart 1: Gross NPA

Total Advance of Bank

Table 2: Total Advance

(In Cr.)

Year\ Bank	Hdfc	Icici	Axis	Indusind
2017-18	658333.09	512395.29	439650.3	144953.66
2018-19	819401.22	586646.58	494797.97	186393.5
2019-20	993702.87	645289.96	571424.15	206783.16
2020-21	1132836.63	733729.09	614399.4	212595.41
2021-22	1368820.93	859020.44	707946.59	239051.53
2022-23	1600585.9	1019638.31	845302.84	289923.68

Source: RBI reports and annual reports of selected banks

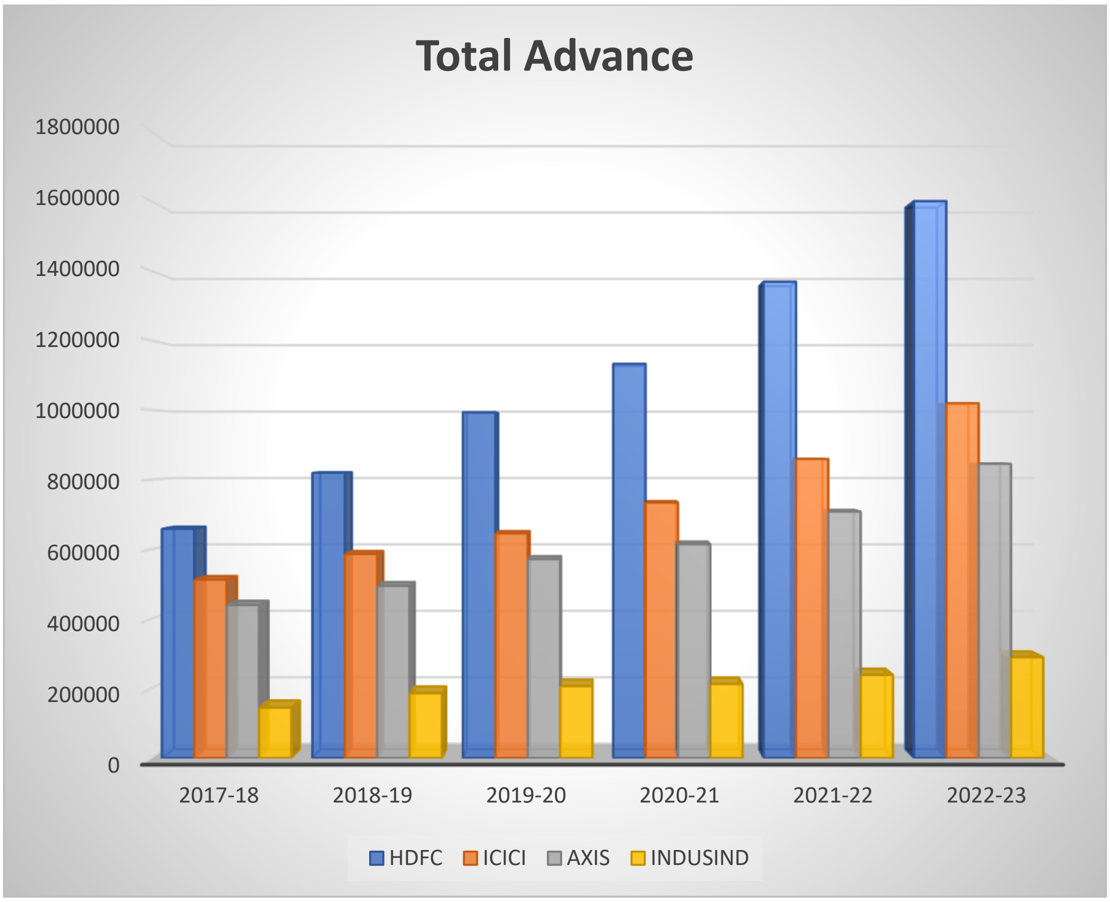

Chart 2: Total Advance

GNPA Ratio (Gross NPA/Total Advance) of Banks

Table 3: GNPA Ratio

Year\Bank	HDFC	ICICI	AXIS	INDUSIND
2017-18	1.30	10.39	7.79	1.18
2018-19	1.36	7.79	6.02	2.12
2019-20	1.26	6.33	5.29	2.49
2020-21	1.32	5.57	3.69	2.73
2021-22	1.18	3.88	2.62	2.31
2022-23	1.13	2.94	2.01	2.01

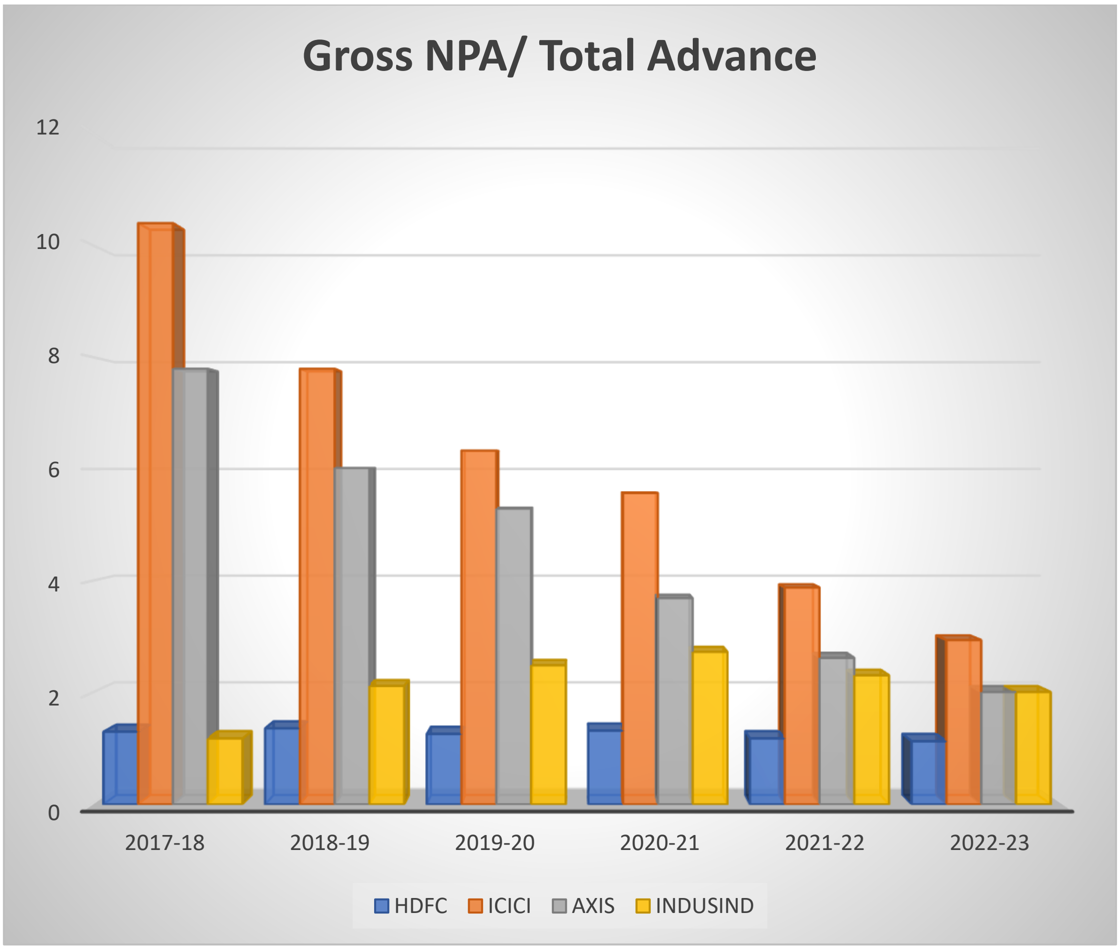

Chart 3. GNPA Ratio

Interpretation

Table 1 and chart 1 shows the gross NPA of HDFC and Indusind bank is continuously growing and ICICI and Axis bank Showed a declining trend but Gross NPA amount of ICICI and Axis bank is very high compare to HDFC and Indusind bank. In table 2 and chart 2 we can see the total advance of selected banks and we observed that all the banks shows an inclining trend in total advance and HDFC bank is leading in this aspect. To illustrate the patterns and status of the GNPA ratio (Gross NPA/total advance) for the chosen banks over the chosen years, Table 3 and Chart 3 were created. It has been noted that GNPA ratio of ICICI and Axis bank was declining but compare to HDFC and Indusind bank their GNPA ratio is very high. If we observe overall aspect of all four banks we can say that HDFC bank performance is very good among all of them.

Anova Analysis

Using Microsoft Excel, an ANOVA analysis was conducted to ascertain whether the GNPA ratios of the chosen banks differed significantly from one another.

ANOVA

Groups	Count	Sum	Average	Variance
HDFC	6	7.55	1.258333	0.007697
ICICI	6	36.9	6.15	7.2986
AXIS	6	27.42	4.57	4.82396
INDUSIND	6	12.84	2.14	0.28768

Source of Variation	Sum of Squares	Degree of freedom	Mean Squares	F	P-value	F crit
Variation Between Groups	90.2314125	3	30.0771375	9.68828825	0.000371651	3.09839121
Variation Within Groups	62.0896833	20	3.10448416			
Total	152.321095	23				

From the above anova analysis the null hypothesis is rejected because the F value 9.68828825, as determined by the anova analysis, is greater than the F critical value of 3.09839121. thus, it can be concluded that the chosen private sector banks' GNPA ratios differ significantly from one another.

Conclusion and Suggestion

For the banking sector of India, non-performing assets have always a significant financial problem. The study observed that overall GNPA position of selected private banks is not good. ICICI and Axis bank have hefty amount of GNPA which impact their creditworthiness and financial performance however the declining trend of GNPA indicates a notable improvement in the asset's quality and effective management of NPA. The study conducted for this article observed that Gross NPAS ratio of ICICI and axis bank also continuously falling and HDFC and Indusind bank has lower range of GNPA ratio which indicates that banks implement effective policies and management to reduce NPA level.

From ANOVA analysis it was found that the GNPA ratios of the chosen banks differ significantly from one another. The study's conclusion stated that non-performing assets (NPA) are a major problem for Indian banks. However, the RBI and other regulatory bodies have implemented effective rules, regulations, standard norms relating to provision and some additional measures that have put pressure on banks to perform better and Indian banking system has responded very positively in implement the provisions norms, fair recognition of borrower, credit appraisals, and update of technology which impact positively on banks financial performance and help to reduce NPA. Based on the aforementioned study, it is recommended that banks create new policies and methods and guidelines to enhance loan and advance recovery, and that the RBI update their credit assessment and tracking system. To ensure prompt payment, a fair borrower selection process and ongoing follow-up are required.

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A COMPARATIVE ANALYSIS OF ROCE AND ROA OF ENERGY COMPANIES IN INDIA

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Sumitra Bishnoi**

ABSTRACT

India is rapidly developing country with a growing demand for energy. To meet this demand India is investing heavily in clean energy sources such as solar, wind and hydropower. A number of companies both private, public and government owned are playing a key role in this development. This is helping to make energy more affordable and accessible for all Indians. It is also helping to reduce India's reliance on fossil fuels and mitigate its impact on climate change. The work of these companies is also very essential to India for achieving SDG 7 which is 'AFFORDABLE AND CLEAN ENERGY '. Clean energy is a subject undergoing intense study all over the word. The present study has been done with the rational to know the effectiveness of ratio. i.e. ROCE & ROA in energy companies. To analyse the performance of renewal energy sector it has taken 5 company and their last 5 year data from their annual reports respectively. To study correlation. pearson's coefficient of correlation is employed which shows that there is positive correlation among them, but some of have a significant correlation .That means that the use of their assets is efficiently and profitable manner. ROCE and ROA are key financial metrics that provides into company's capital efficiency and asset utilization, respectively. This analysis examines the performance of conventional and renewable energy companies over recent years, highlighting their capacity to generate returns for stakeholders while managing the challenges of a dynamic energy market. The findings indicates renewable energy firms demonstrate a steady improvement in ROA, reflecting efficient utilization of assets despite being in a capital-intensive phase of growth.

KEYWORDS*: Renewable Energy, SDG 7, Energy Companies, Energy Policies.*

Introduction

The Sustainable Development Goals (SDG), also known as the global goals that are a set of 17 interconnected and ambitious objectives adopted by all United nations member states in September 2015. They represent a universal call to action to achieve their listed target. The SDGs build upon the earlier millennium development goals (MDGs) but encompass a broader and more comprehensive vision for sustainable development.

India, like other united nations member states, adopted the SDGs in 2015 and make efforts to achieve these global goals by the year 2030.

Clean energy \renewable energy is a fuel of the future. Above mention 17 SDGs there is SDG 7 which is about Affordable and clean energy. By working together it can be achieved and create a more sustainable and equitable future for all. This goal is essential for achieving all of the other SDGs, as energy is needed for everything from poverty alleviation to economic growth to climate change.

To achieve sustainable development and reduce carbon emission, then we should shift from fossil fuels to renewable energy resources. Renewable energy sources, such as solar, wind, hydro and geothermal energy are clean and sustainable. They do not produce greenhouse gases or other pollutants and they are not subject to the same price volatile as fossil fuel.

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Companies whether they are private or public or government who engage in production of clean energy can contribute to achieve SDGs 7. By increasing the share of renewable energy in the global energy mix. Improving energy efficiency. Expanding a access to affordable, reliable, modern energy services. So study on these companies profitability and financial performance is necessary. This can provide information or thorough knowledge of relative profitability of renewable energy companies. Comparative analysis is also a one aspect to know about the companies financial condition.

Comparative analysis on ratios is an process of comparing the ratios of different companies or of the same company over time. This type of analysis can be used to identify trends, assess performance, and compare companies to their peers. There are number of different ratios that can be used in comparative analysis, such as profitability ratios, liquidity ratio, leverage ratios, activity ratios. Comparative analysis on ratios can be a valuable tool that can be used to gain valuable insights into the financial performances of companies.

Return on assets (ROA) is a financial ratio that measures how efficiently a company uses its assets to generate profit. It is calculated by dividing net income by average total assets. ROA is a useful ratio for research purpose on power companies because it can be used to compare the profitability of different power company over time.

Return on capital employed (ROCE) is a financial ratio that measures how much profit a company generates for its stakeholders. It is calculated by dividing net income by Total capital. It is a useful ratio for getting insight to their profits.

For this research purpose five companies are selected i.e.

- **Suzlon Energy**

Suzlon energy ltd. Is founded in 1995 which is a leading Indian wind turbine manufacturer and renewable energy solutions provider. It is the market leader in the wind energy sector. It is a public limited company.

- **Adani Green Energy**

Adani green energy limited (AGEL) is one of the largest renewable energy company in the world. Which is founded in 2015 AGEL develop solar and wind farm project.

- **NHPC**

NHPC limited is an Indian public sector hydropower company that was incorporated in 1975 to plan , promote and organise an integrated and efficient development of hydroelectric power. Recently it has expanded to include other sources of energy like solar, wind, geothermal.

- **SJVN Ltd.**

SJVN company is known as Satlujjal Vidyut Nigam , is an Indian public sector undertaking involved in hydroelectric power generation and transmission . It was incorporated in 1988 as Nathpajhakri power corporation, a joint venture between the Government of india and the Government of Himachal Pradesh.

- **K.P Energy**

KP Energy Limited was originally incorporated as private limited company under companies act. After it was convert into a public company as on may 2015. It is a Gujrat based company . It provides a end to end solution for wind and solar energy.

Objective of the Study

- To assess the relative profitability of different renewable energy companies.
- To track the profitability of the renewable energy sector over time.
- To identify factors that are driving changes in profitability like asset turnover on ROCE and ROA.

Review of Literature

Dr. Pramod bhargava 2017 write a thesis about financial information of technology industry in India . This research upon a Wipro limited and Infosys limited .They have done comparison performance of 2 companies for the last 5 year data along with 5 ratios . In this research they have gotten the result that Infosys was having better financial performance than Wipro limited.

Dr. Ashvin R. Dave and ms. devanshi R shah (2018)conducted a study on financial performance analysis of Indian companies in information technology sector. Therefore they selected data for the past 10 years by using important information in both absolute and relative manner. In this paper they should that they with the increase of sales they have efficient working capital and are more equity driven

Mr vishal Ji bhatt and Dr jagdish are rayani (2019) wrote a research paper on financial performance analysis of selected information technology companies in India. This research is based on Wipro and Oracle company in which they found that Wipro is top in retention of earning in the business itself Oracle is having a negative retention ratio from the viewpoint of liquidity. Overall the profitability scenario of the selected IT companies are significantly different from each other but liquidity position are insignificantly same.

(Morina et al., 2021) Studies has concluded that the most important firm-specific factors are the company size, asset, and sales growth, turnover, liquidity, and leverage, as well as the number of years the company has been engaged in the activity and its ownership structure and board size. In the literature, there are mainly two categories of factors that affect the financial results of RES producers: the specificity of the firm and the specificity of the country.

1Priya.K, 2Nisha.Ashokan, 3 Mrs. Dinisha. C. “An Analysis of the Renewable Energy scenario in India and public engagement in adaptation of renewable energy sources” . The Indian government's initiatives and policies promoting renewable energy have played a vital role in creating awareness among consumers. This paper has analyzed the Perceptions of the society and willingness to adapt alternate energy sources.

Performance analysis in renewable energy companies application of SWARA and WASPAS methods by journal of sustainable finance and investment in the month of November 2022 In this research paper they have discussed Financial performance of companies in terms of financial ratios of SWARA and WASPAS which are multi criteria decision making techniques used in the field of numerical methods were tried to be calculated. With the help of SWARA they conclude that the leverage ratio is most important factor to determining financial performance of companies.

Type of Research

The current research is of exploratory nature in which the ROCE, ROA And Asset turnover ratios of selected companies have been calculated for the study it measures the factors behind their fluctuate.

Source of Data

For the research work the secondary data were collected from Annual reports of the various companies and RBI publication.

Time Period of the Study

The period of the study for research work of five years from 2019 to 2023.

Data Analysis and Finding

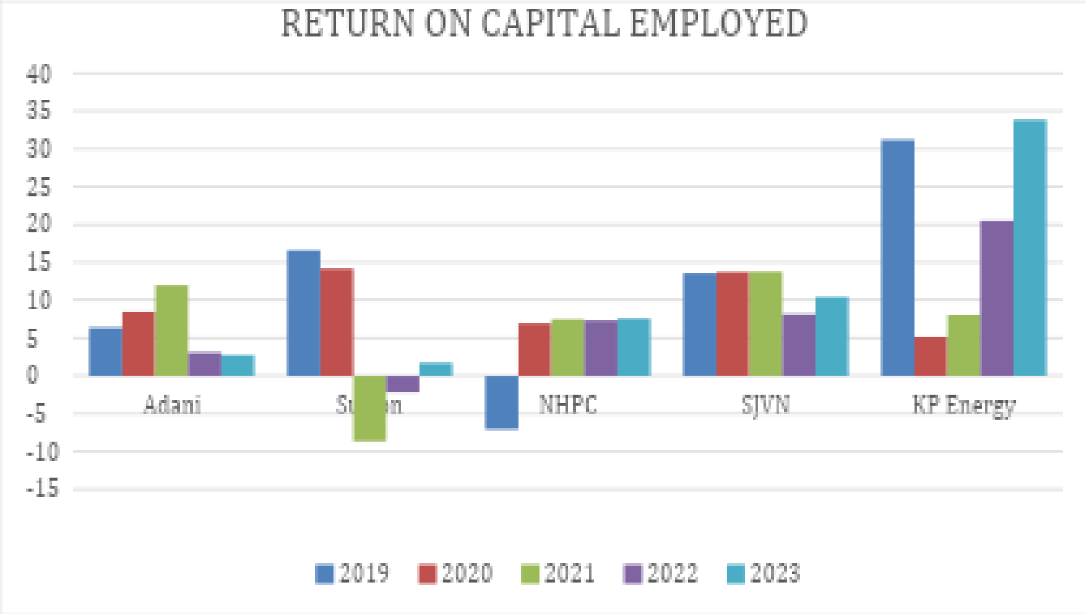
The result of the computations done and the interpretation of result are presented in the following paragraphs. A quick glance at the descriptive statistics on 5 companies that are engaged in renewable energy generation. In this research, researcher has selected last 5 years data to calculated return on capital employed of respective selected companies (table : 1)

Table: 1 Return on Capital Employed

(Rs: in Cr.)

Year /COM.	Adani green Energy	Suzlon Energy	NHPC	SJVN	KP Energy
2019	6.38	16.57	7.09	13.49	31.19
2020	8.43	14.17	6.91	13.7	5.12
2021	12.02	-8.67	7.46	13.76	8.05
2022	3.11	-2.2	7.27	8.14	20.49
2023	2.73	1.73	7.58	10.42	33.87

Source: annual reports of selected companies



Graph 1 shows that the k.p. energy have highest growth in last 5 year as compare to other companies whereas Suzlon and NHPC have negative return but after that they make growth. SJVN have higher return on initial year i.e. 2019 to 2021 and the company make up for the downword loss of year2022 in year 2023. On the other side adani has a lower return compare to other companies. Table2 have the values of descriptive statistics for last 5 years

Table 2: Descriptive Values on Return on Capital Employed

Values	Adani	Suzlon	NHPC	SJVN	KP Energy
Mean	6.534	4.32	4.426	11.902	19.744
Standard Error	1.730736	4.822051	2.88123	1.130391	5.838332
Median	6.38	1.73	7.27	13.49	20.49
Standard Deviation	3.870043	10.78243	6.442626	2.527631	13.05491
Sample Variance	14.97723	116.2609	41.50743	6.38892	170.4306
Kurtosis	-0.94781	-2.2425	4.968782	-0.83873	-2.77481
Skewness	0.551593	0.102195	-2.22748	-1.03893	-0.07639
Range	9.29	25.24	14.67	5.62	28.75
Minimum	2.73	-8.67	-7.09	8.14	5.12
Maximum	12.02	16.57	7.58	13.76	33.87
Sum	32.67	21.6	22.13	59.51	98.72
N	5	5	5	5	5

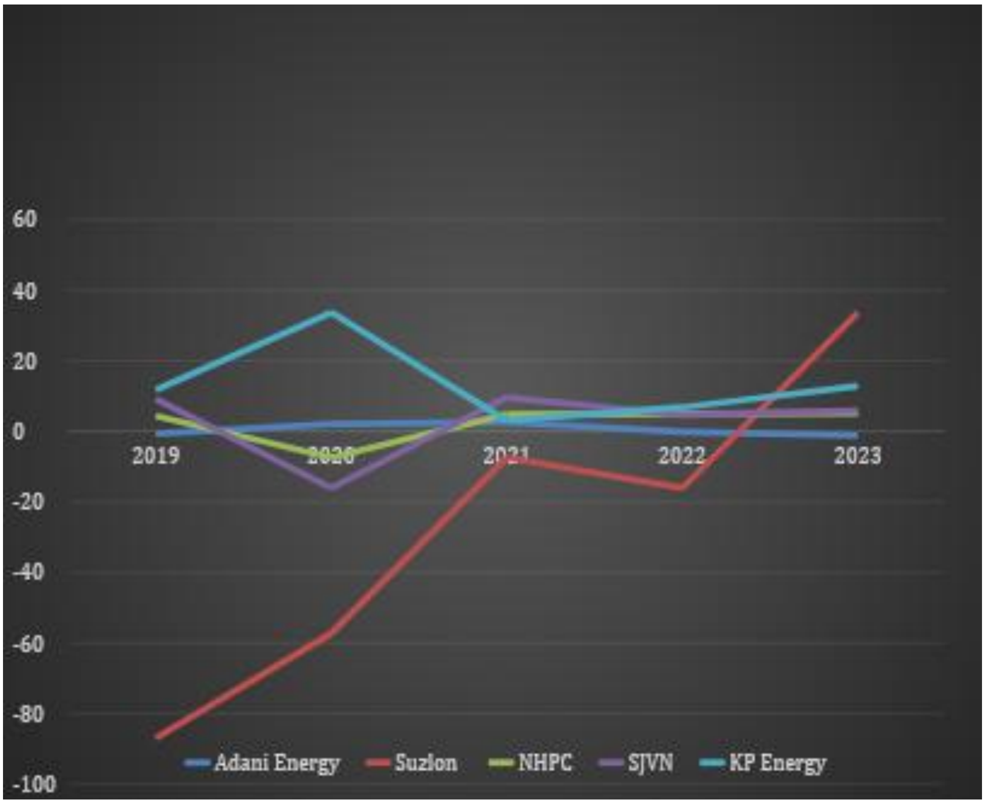
Table 3: Represent the data of selected five companies of return on assets for chosen time period & show their statistical values on Table 4.

Table 3: Return on Assets

(Rs: in cr.)

COM\Year	2019	2020	2021	2022	2023
Adani Energy	-0.64	2.09	2.54	-0.2	-1.14
Suzlon	-86.98	-57.24	-7.43	-16.08	33.75
NHPC	4.41	4.65	4.87	5.03	5.13
SJVN	9.14	9.87	9.68	4.7	5.89
KP Energy	11.83	0.49	3.05	6.8	12.94

Source: Annual reports of the selected company



Graph 2

Table 4: Descriptive values on Return on Assets

Values	Adani	Suzlon	NHPC	SJVN	KP Energy
Mean	0.53	-26.796	2.402	2.666	13.674
Standard Error	0.747141	20.86222	2.461094	4.780443	5.32497
Median	-0.2	-16.08	4.87	5.89	11.83
Standard Deviation	1.670659	46.64934	5.503174	10.6894	11.907
Sample Variance	2.7911	2176.161	30.28492	114.2632	141.7765
Kurtosis	-2.83638	-0.72258	4.948961	4.234999	3.033882
Skewness	0.470812	-0.06471	-2.2222	-2.02269	1.61938
Range	3.68	120.73	12.56	25.76	30.7
Minimum	-1.14	-86.98	-7.43	-16.08	3.05
Maximum	2.54	33.75	5.13	9.68	33.75
Sum	2.65	-133.98	12.01	13.33	68.37
Count	5	5	5	5	5

Table 5 Represent the asset turnover ratio for selected companies and their graph and statistical values thereafter.

Table 5: Asset Turnover Ratio

Com\year	2018-19	2019-20	2020-21	2021-22	2022-23
Adani Energy	5.87	19.49	17.29	0.51	0.27
Suzlon	29.84	6.56	23.26	0.73	0.61
NHPC	13.69	13.51	12.83	0.12	0.13
SJVN	17.79	17.16	14.77	0.13	0.13
K.P Energy	96.48	33.09	29.28	0.92	1.34

Graph 3: Asset Turnover Ratio Over Last 5 Year

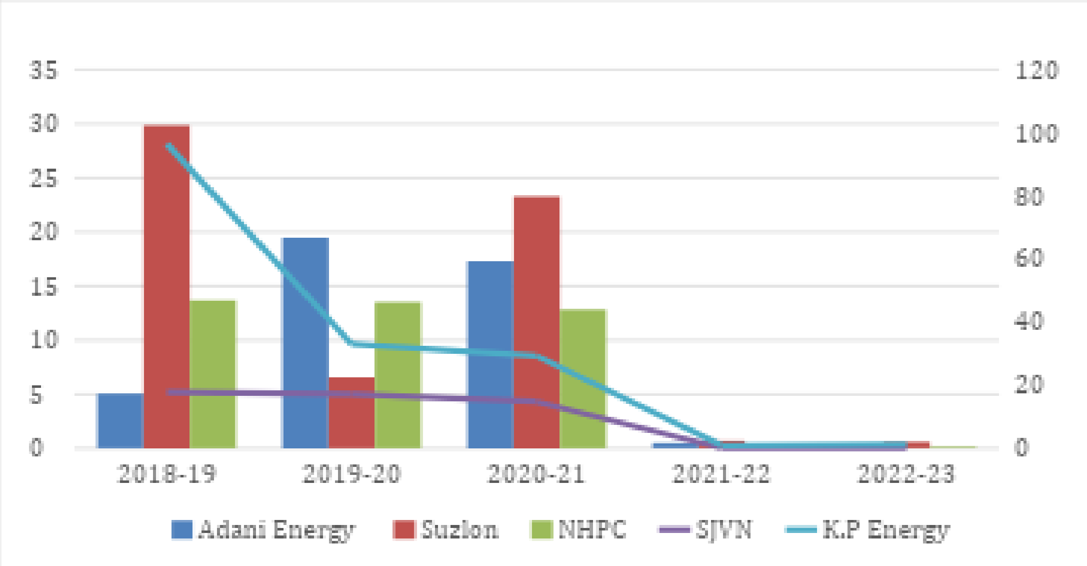


Table 6: Descriptive Value

Column1	ADANI	SUZLON	NHPC	SJVN	KP
Mean	8.526	12.2	8.056	9.996	32.222
Standard Error	4.131457	6.046453	3.240993	4.059164	17.42414
Median	5.07	6.56	12.83	14.77	29.28
Standard Deviation	9.238218	13.52028	7.247081	9.076568	38.96156
Sample Variance	85.34468	182.798	52.52018	82.38408	1518.003
Kurtosis	-2.97729	-2.45783	-3.32113	-3.24966	2.262752
Skewness	0.46084	0.606361	-0.59975	-0.54091	1.445489
Range	19.22	29.23	13.57	17.66	95.56
Minimum	0.27	0.61	0.12	0.13	0.92
Maximum	19.49	29.84	13.69	17.79	96.48
Sum	42.63	61	40.28	49.98	161.11
Count	5	5	5	5	5

Company	P Value Of C	Correlation (ATO & ROCE)	P Value of E	Correlation (ATO & ROA)
Adani Energy	0.043070591	0.889990311	0.937760404	0.018464493
Suzlon	0.736279294	0.208649719	0.290146003	0.594722336
NHPC	0.309246683	0.576217044	0.072827528	0.843094627
SJVN	0.019397431	0.935667442	0.008105598	0.008105598
KP Energy	0.814415894	0.146280791	0.79042047	0.165360099

Conclusion

The research was performed to test what would be the impact of several ratios on financial performance of companies. For performing the test first of all calculate correlation values among ROA , ROCE , Asset turnover ratio, but its only show the correlation not the level of significance i.e. p (probablity) value which is very important to study the statistical significance. If we want to check whether there is a statistically significant relationship between two variables we look at p value. Calculate p value with the help of regression and anova table. The conclusion is that when p value compare with .05. If the p value of a regression coefficient is less than the significance level, then you can reject the null hypothesis and conclude that the coefficient is statistically significant. This means that the independent variable has a significant effect on the dependent variable. If the value of finding will greater than .05

then that means that the null hypothesis will not be rejected and conclude that correlation between two variable insignificant. This does not necessarily mean that the independent variable has no effect on the dependent variable. It is possible that the sample size is too small to detect a small effect.

On the basis of above calculation shows that there is significant correlation between return on capital employed and assets turnover ratio of the company adani energy & sjvn. i.e. .0430 & .0193 which is less than .05 of p value. On the other side p value of adani energy between ROA & asset turnover is .937 which is more then p's significance level that means there is no significant correlation between them. SJVN is only company that have significant correlation among ROCE, ROA & asset turnover. This could be due to a number of factors, such as the efficiency of the company's operation, the profitability of its investment, or the level of debt in capital structure. One possible conclusion is that the company is generating high returns on its capital employed by efficiently using its assets to generate revenues.

ROA OF NHPC has found to be positively correlated with asset turnover, it could suggest that company is more efficient in using their assets. It could lead to increased investment, increased demand & profitability for clean energy. The Limitation of this study is that it use only five year data and selected a limited companies. For the financial performance uses some of the ratio. The future researcher should use more of the ratio and select the data for a long period.

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THE IMPACT OF GST ON THE DIGITAL ECONOMY IN INDIA: CHALLENGES AND PROSPECTS

Suresh Kumar*

ABSTRACT

The Goods and Services Tax (GST), one of the most complex taxations introduced by the Indian government in 2017, has been developing many phases. In the year 2024, as India enters the list of world's leaders of the digital economy, the role of GST in the formation of digital business models has become increasingly crucial. This paper will discuss the impact of GST on the Indian digital economy through its current influence on sectors such as e-commerce, digital services, and fintech. This paper stresses issues emanating from digital businesses, including compliance concerns, obscurity regarding tax classification, and cross-border taxation. It also aims to reflect upon the opportunities that GST creates in broadening the reach to the market, transparency, and innovation in the digital platform. Finally, the paper offers some policy recommendations to fine-tune the position of GST with regard to the growth of India's digital economy.

KEYWORDS*: Goods and Services Tax, Digital Economy, E-Commerce, Fintech, Taxation, India, 2024.*

Introduction

The rapid growth of India's digital economy, spurred by advancements in internet connectivity, mobile technology, and online businesses, has created both challenges and opportunities in tax administration. The introduction of GST in 2017 was intended to simplify the country's tax system, improve compliance, and promote ease of doing business. As of 2024, the digital sector in India has emerged as one of the biggest drivers of the economy, with sectors like e-commerce, digital services, fin-tech, and online entertainment experiencing exponential growth.

Notwithstanding the strengths of GST, various complexities remain in the case of digital companies that will operate from different states and multiple localities. With a view to factoring in multiple dimensions of the impact of GST on the Indian economy in matters of digital transactions, analyzing particular problems faced in the conduct of business enterprises and gaining insight into better tax structures suitable for success in the future.

Overview of GST in India and Its Evolution

GST was implemented on July 1, 2017, to consolidate various indirect taxes and create a uniform tax system across the nation. The features of GST are as follows:

- **Single Indirect Tax System:** The GST has merged a variety of indirect taxes into one single tax, including VAT, excise duty, and service tax.
- **Dual GST Structure:** GST is imposed by both central and state governments, and there are multiple tax slabs for different categories of goods and services.
- **Tax on Value Addition.** GST is a value-added tax. This means businesses can always claim credit for taxes paid on inputs. Thereby preventing tax cascading.

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Since the day of its incorporation, the government has amended and streamlined several instances of GST architecture in relation to issues within every sector including the digital sector. The growth in the digital economy due to e-commerce, digital media, online services, and financial technology calls for constant up-gradation of the GST system to correspond with its scale of growth.

Impact of GST on India's Digital Economy

E-Commerce

E-commerce is one of the most significant contributors to India’s digital economy, with companies like Amazon, Flipkart, and niche platforms seeing increasing consumer demand. GST has had a mixed impact on this sector:

- **Positive Impact**
  - **Streamlined Taxation:** GST has simplified the tax system for e-commerce businesses by replacing the complex web of state-specific VAT laws and central taxes.
  - **Uniform Tax Rates:** GST has allowed businesses to standardize prices and ensure that goods sold across India are taxed uniformly, improving transparency for consumers..

Challenges

- **Compliance Burden:** E-commerce platforms are required to collect and remit taxes on behalf of their sellers, which increases compliance costs, particularly for small and medium enterprises (SMEs).
- **Interstate Logistics and Tax Variability:** The interstate movement of goods is indeed smoother, yet e-commerce platforms have challenges in the management of cross-state tax issues, especially when it comes to digital goods and services, for which tax classifications can vary.

Digital Services

The digital services sector, encompassing online content platforms, digital subscriptions, and SaaS, has experienced high growth within the Indian market. GST is applicable to both inter-state and international digital services supplied to consumers in India, and thus necessitates sufficient tax classification.

Benefits

- Improved Market Access: Cross-border trade in digital services under GST lets Indian digital firms expand their market reach towards a global customer base while ensuring proper tax compliance.
- Input Tax Credit: The businesses offering digital services can claim an input tax credit on the taxes paid on software, hosting, and infrastructure services, thus reducing the overall tax burden.

Challenges

- **Tax Classification Issues:** Many digital services, such as cloud computing or software as a service (SaaS), face ambiguity in tax classification under GST. Businesses sometimes struggle to determine the appropriate tax rate or whether their service falls under taxable or exempt categories.
- **Cross-Border Digital Transactions:** Given the global nature of digital services, GST has brought in issues concerning international taxation, particularly for services rendered by foreign companies to Indian consumers. International services rendered by international entities are a subject of debate, leading to complications in enforcement and compliance.

Fintech and Online Financial Services

The other significant pillar of India's digital economy is the fintech sector, including online payment platforms, digital wallets, insurance, and lending services. GST has had a huge impact on this sector:

- **Positive Impact**
  - **Simplification of Taxation of Financial Services:** GST has made the taxation of services offered by fin-tech companies much more straightforward, thereby clarifying tax rates for online transactions.
  - **Encouraging Formalization:** GST inspires fin-tech firms to do their business in the formal economy and limits the scope for tax evasion and gives confidence to the consumers and investors.

Challenges

- **Taxation of Financial Services:** Some fintech products, such as insurance and loan products, are still ambiguous regarding their tax classification. The definition of financial products under GST has been challenging and has resulted in the inconsistent application of tax rates.
- **Cross-Border Transactions in Fintech:** Just like digital services, fintech platforms often involve international transactions, which raises questions about the applicability of GST on cross-border payments and digital products.

Policy Challenges and Recommendations

The digital economy growth brings forth some specific challenges to the GST framework. Some of the major issues are:

- **Lack of Clarity on Tax Classification:** When new digital business models are developed, sometimes products and services under GST face ambiguous guidelines regarding tax classification of the digital product. Hence, such emerging sectors such as AI, blockchain, and cloud computing should be provided with detailed guidelines from the government.
- **Cross-Border Taxation:** Indian digital economy increasingly interacts with international markets. A greater need now exists for clarity in coordination between India and other countries on taxation of cross-border digital services. Implementing policies like the OECD's "Unified Approach" for taxing the digital economy could help streamline this process.
- **Simplify the Procedure for Compliance:** Compliance of GST to the micro and small units is very troublesome. The government should implement a simpler procedure of compliance with regard to GST on digital sectors in terms of lesser burden for administration purposes.

Conclusion

Introducing GST has resulted in both negative and positive effects on India's digital economy. Though the system has streamlined taxation, enhanced transparency, and facilitated business operations across states, there still exist challenges with tax classifications, cross-border transactions, and the compliance burden on smaller businesses.

As India further progresses its digital economy in 2024, its GST structure has to become refined and more versatile. Clarity in tax policies, making the compliance process much easier, and building a sophisticated cross-border tax system will help support the growth and innovation in India. This would propel India to keep its digital economy competitive with international economies.

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APPRAISAL OF MUTUAL FUND PERFORMANCE: A STUDY ON SELECTED HDFC MUTUAL FUND SCHEMES

Pratibha Shrimal*

ABSTRACT

Mutual funds have had phenomenal growth throughout time in both the domestic and international financial markets. Due to the benefits it offers, mutual funds are now regarded as highly preferred and worldwide recognised form of investing across investors with few resources. Assessing and comprehending the features of these investment vehicles helps people reach their financial objectives, but before making any decisions about investments, one should take into account the risk factor and market volatility inherent in mutual funds. Mutual funds offer an easy and accessible way for individuals to participate in the financial markets without the need for extensive knowledge or time to manage individual investments. They are broadly categorized into equity funds, debt funds, hybrid funds, and money market funds, each designed for specific objectives. Through a performance assessment of a group of chosen mutual fund schemes, this analysis seeks to improve understanding of how mutual funds operate. The HDFC mutual fund schemes have been chosen specifically for this investigation.

***KEYWORDS**: Mutual funds, AMC, Return, Performance Analysis.*

Introduction

Nowadays people have begun to appreciate the value of investment and savings, investing in financial market has become a trend among people of India. There are many investment options available for Indian investors like stocks, debentures, company deposits, bonds, fixed deposits, mutual funds, precious metals etc. Investor prioritizes a financial instrument while reviewing a number of variables, which involves the time period, return-risk attached and market fluctuation. People are drawn to the stock market more than other means of investing as it offers higher returns, yet these higher returns are often linked with a higher degree of risk. Investing in stock market is beneficial for people who have proper knowledge and education of stocks, market fluctuation, rules & regulation associated with it but due to lack of knowledge and fear of loss a large population does not invest in stock market.

To promote the involvement of small investors and to direct their small savings and resources into the stock market, mutual funds were first made available When the Indian government and RBI formed Unit Trust of India during 1963. After its formation UTI had an AUM about Rs. 6700 crores at ending of 1988. Since then many AMCs are incorporated in Indian Financial market. Mutual funds are typically regarded as one of the most prevalent financial investment instruments. Mutual fund sector is the emerging and advanced sector in Indian Financial market. It offers numerous scheme types to satisfy the particular needs of various investors. Mutual funds are a sort of investment tool that accumulates the capital of multiple investors and investment is made by professional fund managers and AMCs in equities, debts and other securities. Asset Management Company or professional managers charge a small fee for providing their managerial services. Mutual funds give benefit of diversified portfolio, liquidity of funds at low cost fees. If one wants to invest in financial market without worry to directly manage stocks, mutual fund is a better option than amongst other financial instruments. A mutual fund consist a diverse set of equities, debentures, bonds and other securities. A proportional percentage of the fund’s returns including profit and losses as well as any income from its Investment portfolio are allocated to investors who own units of shares of mutual assets. Assets in mutual funds are spread throughout a wide range of segments, which serves the purpose of diversifying the portfolio while reducing the amount of risk overall. Diversification helps minimize risk because all the stocks of fund will not switch in the same direction or increase by the same amount at once.

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"Housing Development Finance Corporation Limited Mutual Funds"(HDFC Mutual Funds)

In 1977, HDFC was incorporated as a specialized finance company and HDFC AMC was established on the tenth of December 1999, in accordance with the Companies Act of 1956. In July 2000, The Securities and Exchange Board of India granted approval for it to function as an AUM for the HDFC mutual Funds. HDFC Mutual funds are a joint venture between Abrdn Investment Management Limited and HDFC. The registered office of HDFC AMC is located in Mumbai. HDFC AMC is one of the most successful and preferred mutual fund managers. It provides retail and institutional clients with a full range of saving and investing alternatives across multiple categories of assets. AUM of HDFC was Rs. 442224.64 crores as at 31.3.2023, representing an increase of 1% against Rs. 411939.78 crores at 31.3.2022.

Summary of HDFC Schemes

HDFC AMC is currently managing 7 close ended schemes and 28 open ended schemes of mutual funds. Additionally, the AMC delivers management of portfolios and advisory services, which correspond with activities of mutual fund. 48 debt-oriented schemes, 26 equity-oriented schemes, 2 liquid schemes, and 9 other schemes have been made available by HDFC AMC. Some of the MF Schemes are HDFC Balanced Advantage Fund, HDFC Flexi Cap Fund, HDFC Hybrid Equity Fund, HDFC Capital Builder Value Fund, HDFC Prudence Fund, HDFC Large and Mid Cap Fund, HDFC Top 100 Fund, HDFC Dynamic Debt Fund, Housing Opportunities Fund, HDFC Tax saver Fund, HDFC Equity Savings Fund, HDFC Infrastructure Fund, HDFC Focused 30 Fund, HDFC IndexFund-Nifty 50 Plan, HDFC Floating Rate Debt Fund etc.

Review of Literature

Dr. Sarita Bahl, Debasish (2012)[1] "in her paper A COMPARATIVE ANALYSIS OF MUTUAL FUND SCHEMES IN INDIA, analyzed the selected schemes of mutual funds on risk and return models and measures. The study was conducted for the period 1996 to 2005. The study concluded Birla Sun Life, HDFC and LIC mutual funds didn't show satisfactory performance than Franklin Templeton and UTI."

K (2013)[2], "in their research on the topic, A Comparative Analysis on Performance of SBI And HDFC Equity, Balanced and Gilt Mutual Fund comparing and analyzing the performances of SBI and HDFC Mutual Funds selecting Equity, Gilt and Balanced Mutual Funds using Sharpe Ratio, Treynor Ratio and Jensen Ratio. The study is performed for the period of January 2010 to December2012 for comparison of performance of the funds. She came to discover that the performance of the funds shifted in accordance with market conditions, i.e., the market's instability had a bearing on the returns of the schemes in 2010 and 2011, but the performance of the schemes stabilized in 2012. Overall, the analysis showed that, throughout the chosen time period, investing in HDFC (Equity, Balanced, Gilt) Mutual Fund is preferable than investing in SBI Mutual Funds."

Rama Devi and Lenin Kumar (2011)[3] , " in their study Performance Evaluation of Private and Public Sponsored Mutual Funds in India, The study examined 340 mutual funds from both the private and public sectors that were categorized as money market, debt, balanced, and equity funds. The study found a lack of distinction between the returns of private and public sector mutual funds."

Sahil Jain (2012)4, "undertook the topic Analysis of Equity Based Mutual Funds in India' to examine the efficiency of equity-oriented mutual funds. The CAPM (Capital Asset Pricing Model) and the risk-return combination have both been used in the analysis. The study as a whole reveals that LIC has been the most adverse performer, with returns below projected returns on the risk-return relationship, followed by UTI and HDFC as the best performers."

Rupeet Kaur (2012)5 "in her paper titled A Comparative Analysis of Growth and Dividend Tax Oriented Mutual Fund Schemes in India. examined the risk-return return aspects throughout selected 18 mutual fund categorized under tax oriented schemes, growth schemes ,open- ended equity schemes and dividend schemes.

According to the analysis, the majority of the chosen schemes were unable to give investors a good return compared to the market. It turned out that growth scheme efficiency was superior to dividend schemes."

Dr. Rajesh Manikraoji Naik and M R Senapathy (2013)[6], "on the topic ,A Comparative Study on The Performance of Mutual Funds SBI Mutual Funds V/S Others, conducted while comparing HDFC top

100 Mutual Fund with SBI Magnum Equity Mutual Fund on the basis of their performance in 2011- 2012, using Beta performance, Sharpe ratio and Standard Deviation. The authors concluded through stating that there is not much variance between SBI Mutual Fund and HDFC Mutual Fund, both of which were good investment options."

Gomathy Shankari Thyagarajan (2009)[7] "in her paper "Performance Evaluation of Indian Mutual Fund Industry" focused on the CAGR returns compared to their standards for the asset management organizations Franklin Templeton, HDFC, and ICICI Prudential. The results show that the sample schemes' Sharpe ratios performed better than those of the benchmark. It came to light that most mutual funds performed well in terms of performance, many of their schemes outperformed benchmark indexes as well and investors began to value their past performance."

Objectives

- To broaden the understanding of public of the selected mutual fund schemes offered by HDFC.
- To get knowledge of the probable risk linked with each mutual fund scheme.
- To assess and compare the Net Asset Value (NAV) of the HDFC mutual funds.

Research Methodology

This research is conducted on Specific HDFC Mutual Fund Schemes with the help of secondary data to analyze the risk and return factors of different mutual fund Schemes. Statistical and other methods are used for comparing the efficiency of selected mutual fund schemes.

Source of Data

The study is conducted using secondary data gathered from variety of sources like newspaper, online bulletins, websites, journals, annual report of Asset Management Company and other published information.

Scope of Study

The study is performed by selecting 5 HDFC Mutual Fund Schemes - HDFC Large and Mid-Cap Regular Growth Fund, HDFC Hybrid Equity Growth Fund, HDFC Top 100 Growth Fund, HDFC Flexi Cap Growth Fund, HDFC Mid-Cap Opportunities Growth Fund. NAV and Return data of 3 years has been taken for analysis of these mutual funds.

Tools used for Analysis

- **Average Return:** The fundamental statistical mean from various returns produced over time is known as the average return. For any given collection of data, the mean return is precisely calculated as a simple average. The sum of the numbers is calculated and then divided by number.
- **Standard Deviation:** The standard deviation denotes the average degree of variability in the dataset. The S.D. value provides insight into how fluctuating fund returns have been over the last three years.
- **Treynor's Ratio:** It reveals the volume of a surplus return that earned for each unit of risk taken. A greater value indicates a better return for the risk taken by the fund.
- **Sharpe's Ratio:** The Sharpe ratio describes the level of risk undertaken to yield return. To evaluate risk-adjusted performance, it divides the excess returns of a fund by standard deviation**.**

Data Analysis

Table 1

Schemes	Returns		
	2023	**2022**	**2021**
HDFC Large and Mid-Cap Regular Growth Fund	28.2	11.95	31.42
HDFC Hybrid Equity Growth Fund	17.93	8.72	20.82
HDFC Top 100 Growth Fund	24.28	10.38	25.76
HDFC Flexi Cap Growth Fund	24.9	14.32	32.41
HDFC Mid-Cap Opportunities Growth Fund	36.1	18.09	35.65

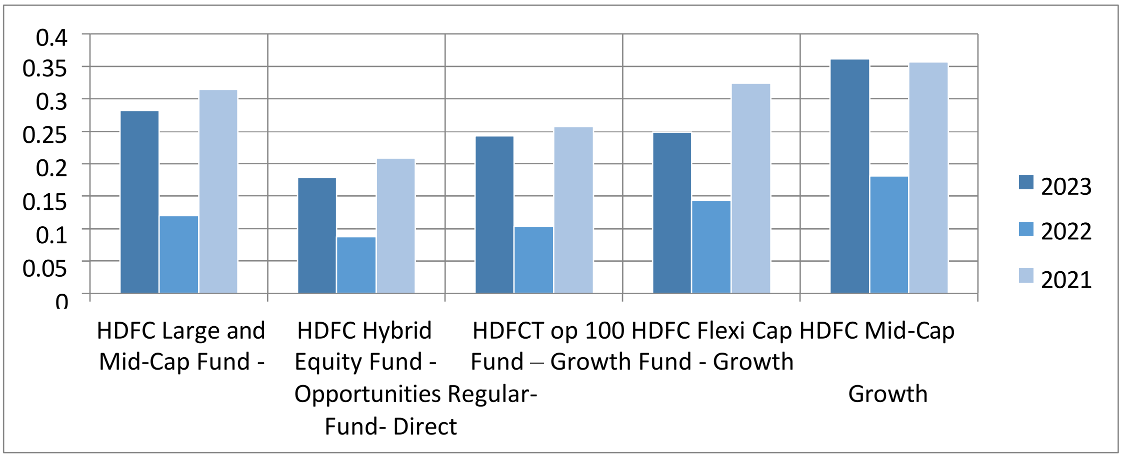

Chart: showing returns of HDFC Mutual Funds (Table 1)

Table 2

Scheme Name	Category	NAV
HDFC Large and Mid-Cap Regular Growth Fund	Large & Mid Cap fund	244.21
HDFC Hybrid Equity Growth Fund	Aggressive Hybrid Fund	101.85
HDFC Top 100 Growth Fund	Large Cap Fund	869.88
HDFC Flexi Cap Growth Fund	Flexi Cap Fund	1339.28
HDFC Mid-Cap Opportunities Growth Fund	Mid Cap Fund	132.18

Table 3

Scheme Name	Mean	Standard Deviation	Minimum	Maximum	Range
HDFC Large and Mid-Cap Regular Growth Fund	0.238	0.104	0.119	0.314	0.194
HDFC Hybrid Equity Growth Fund	0.158	0.063	0.087	0.208	0.121
HDFC Top 100 Growth Fund	0.201	0.084	0.103	0.257	0.153
HDFC Flexi Cap Growth Fund	0.238	0.090	0.143	0.324	0.180
HDFC Mid-Cap Opportunities Growth Fund	0.299	0.102	0.180	0.361	0.180

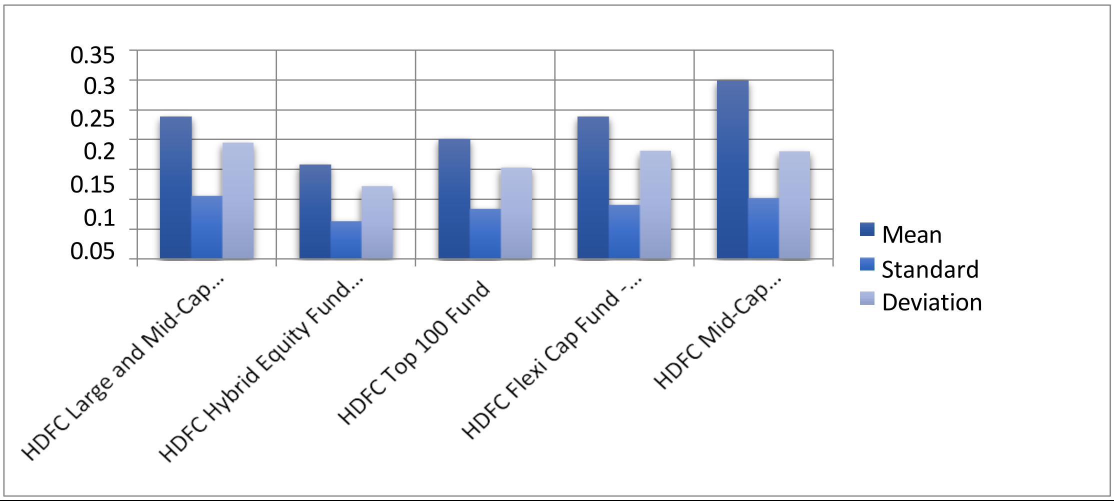

Chart Showing mean, Standard Deviation Of MF Schemes(Table-3)

Table 4

Scheme Name	Sharpe's Ratio	Treynor's Ratio
HDFC Large and Mid-Cap Regular Growth Fund	1.66	0.22
HDFC Hybrid Equity Growth Fund	1.44	0.1
HDFC Top 100 Growth Fund	1.43	0.19
HDFC Flexi Cap Growth Fund	1.78	0.24
HDFC Mid-Cap Opportunities Growth Fund	1.8	0.27

Interpretation and Suggestions

Table 1 shows return of 3 years of selected HDFC Mutual Fund schemes. HDFC Large and Mid-Cap Regular Growth fund, HDFC Hybrid Equity Growth fund, HDFC Top 100 Growth fund, HDFC Flexi Cap Growth fund gave highest return in 2021 whereas HDFC Mid-Cap Opportunities Growth fund gave highest return in 2023. HDFC Mid-Cap Opportunities-Direct Plan Growth fund has highest average return of 29.94%. Table 2 presents schemes category and NAVs of selected Mutual fund Schemes. By observing above mentioned table it is concluded that HDFC Flexi Cap Growth Fund has highest NAV of 1339.28 whereas HDFC Hybrid growth fund has lowest NAV of 101.85. After analyzing the data presented in Table 3, Standard Deviation of HDFC Large and Mid-Cap Regular Growth fund is highest with 10.43% thus implying more variability than other schemes. By evaluation of the above tables, HDFC Mid-Cap Opportunities Growth fund has comparatively lower NAV of Rs. 132.18 but it's Sharpe's ratio is 1.8 and Treynor's ratio is 0.27, implying good performance than other schemes. HDFC Hybrid Equity Growth fund and HDFC Top 100– Growth fund have lowest ratios giving average performance in comparison. Based on the performance analysis above, it is recommended that for appraisal of mutual funds investor should also consider use of statistical tools other than of NAVs and returns.

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AN ANALYSIS OF INDIAN RURAL INVESTORS' INVESTMENT AWARENESS AND PREFERENCES

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Dr. P.C. Saini**

ABSTRACT

Investing and saving can provide profitable outcomes. Still, we have to choose where and how much to invest. Understanding each investing platform and its associated risk exposures is essential for making a wise choice. To achieve their financial goals, all individuals must plan their investments. Nonetheless, it would be illogical to assume that every investor has a thorough understanding of all investing-related topics. Investors, particularly those in rural areas with limited resources, education, income, etc., may think differently while meeting their demands. Researching the investing inclinations of rural investors is essential. ..In order to understand the level of awareness about the investment avenues available to invest in and the investment preferences by the rural residents among this plethora of options, apropos to bring about inferences and suggestions, a profusion of research papers and theses tending different rural regions in India have been scrutinised..

KEYWORDS*: Rural Investors, Awareness, Investments, Investment Preferences, Financial.*

Introduction

Rural India is largely underserved in terms of financial products beyond savings accounts and traditional investments like gold and land. Despite increasing financial inclusion efforts, such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), there remains a significant gap in awareness and participation in formal financial markets. Understanding the factors that influence rural investors' awareness and preferences can guide policy interventions aimed at improving financial literacy and increasing access to formal financial products.

Research Problem

Although rural areas have access to basic banking products, rural investors often lack awareness of formal financial products such as stocks, mutual funds, and government bonds. This research seeks to investigate why rural investors prefer certain investment products over others and what factors contribute to their decision-making process.

Literature Review

- **Patnaik (2019)** conducted a study on the relationship between financial literacy and investment behavior among rural households in Odisha. The study concluded that rural investors demonstrated poor knowledge of mutual funds, stocks, and bonds. Only 35% of respondents were aware of basic financial concepts like inflation, interest rates, and the time

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value of money. The study emphasized that improving financial literacy could help rural households make better financial decisions, particularly in terms of long-term investments.

- **Rath and Gupta (2020)** explored the barriers to financial inclusion in rural India and highlighted that low levels of financial literacy lead to underutilization of formal financial products such as government bonds, mutual funds, and insurance. They found that more than 60% of rural households in their sample had limited knowledge of investment products beyond savings accounts and gold.
- **Meenakshi (2020)** in her study on financial inclusion in rural areas found that while there was an increase in the number of bank accounts opened under government initiatives like Pradhan Mantri Jan Dhan Yojana (PMJDY), the lack of financial literacy prevented rural people from investing in products like mutual funds and stocks, despite having bank accounts. of rural investors in Haryana and found that gold and real estate were the preferred choices. The study observed that 75% of respondents preferred gold due to its perceived stability and historical value in Indian culture. Similarly, 60% of respondents invested in land or real estate as they believed it to be a safe, long-term investment. However, only 10% of the sample reported investing in stocks or mutual funds, with the most common reason being a lack of understanding of these financial products.
- **Ravi and Babu (2022)** conducted a survey in rural Tamil Nadu and found that rural investors are generally conservative. Among respondents, 80% preferred low-risk investments like fixed deposits and government bonds. The remaining 20% were divided between real estate (12%) and gold (8%). The study concluded that risk aversion and a preference for tangible assets were the dominant factors influencing investment decisions in rural households.
- **Singh (2021)** provided insights into rural investor psychology, revealing that rural households prioritize financial security over higher returns. This is because rural investors often lack access to diversified financial products and tend to view investments in the stock market or mutual funds as speculative and risky.

Research Methodology

Research Design

A quantitative research design using a cross-sectional survey method is employed to capture the awareness and preferences of rural investors.

Sample Design

The study targeted rural households in four states: Uttar Pradesh, Maharashtra, Bihar, and Tamil Nadu, with a sample size of 1,000 respondents (250 from each state). Stratified random sampling was used to ensure diverse representation across income groups, education levels, and age brackets.

Data Collection

Data was collected through face-to-face interviews using a structured questionnaire. The questionnaire covered the following aspects:

- Demographic profile of respondents (age, gender, income, education).
- Awareness of various investment options.
- Investment preferences and reasons for choosing them.
- Barriers to investment in formal financial products.

Statistical Tools

- **Descriptive Statistics** for summarizing demographic characteristics and responses.
- **Chi-Square Test** to assess the relationship between categorical variables (e.g., age vs. investment preferences).
- **Correlation Analysis** to examine the relationship between financial literacy and investment behavior.
- **Multiple Regression Analysis** to analyze the influence of various factors like income, education, and financial literacy on investment preferences.

Data Analysis and Results

Demographic Profile of Respondents

The demographic characteristics of the respondents are summarized as follows:

Demographic Characteristic	Category	Percentage
Age	18-30 years	20%
	31-50 years	60%
	51+ years	20%
Gender	Male	70%
	Female	30%
Income Level	< INR 2,00,000	40%
	INR 2,00,000 - INR 5,00,000	35%
	> INR 5,00,000	25%
Education Level	Primary	20%
	Secondary	50%
	College	30%

Awareness of Investment Products

The awareness of various investment products among rural investors was analyzed. Below are the results:

Investment Product	Awareness Percentage (%)
Gold	85%
Real Estate	80%
Savings Accounts	75%
Fixed Deposits	65%
Mutual Funds	25%
Stocks	20%
Government Bonds	15%

- **Insight:** Gold and real estate continue to dominate as the most recognized investment products, while formal products such as mutual funds, stocks, and government bonds have low awareness levels.

Investment Preferences

When asked about their investment choices, respondents indicated the following preferences:

Investment Product	Preference (%)
Gold	50%
Real Estate	30%
Fixed Deposits	10%
Mutual Funds	5%
Stocks	3%
Government Bonds	2%

- **Analysis:** Rural investors have a strong preference for tangible, low-risk investments, such as gold and real estate. Only 5% preferred mutual funds, and only 3% chose stocks.

Factors Influencing Investment Preferences

The following factors were cited as influencing investment decisions:

Factor	Percentage (%)
Trust in Investment	75%
Risk Aversion	65%
Family/Peer Influence	60%
Safety & Security	55%
Return on Investment	30%

- **Analysis:** Trust in the investment vehicle and safety are the two dominant factors in the investment decision-making process. Financial returns are a secondary consideration for rural investors.

Barriers to Investment

The key barriers preventing investment in formal financial products are:

Barrier	Percentage (%)
Lack of Knowledge	58%
Limited Access to Financial Services	40%
Risk Aversion	50%
Distrust in Financial Institutions	35%

- **Analysis:** The dominant barrier to formal investment is a lack of knowledge. Over half of the respondents cited not knowing enough about investment products as a primary deterrent. Risk aversion and distrust in financial institutions also emerged as significant obstacles.

Statistical Analysis

Chi-Square Test

A chi-square test was conducted to assess whether there is a significant relationship between **age** and preferred investment products. The observed and expected frequencies were calculated for different age groups and their preferences for gold, real estate, and mutual funds.

- **Chi-Square Value**: 18.23
- **Degrees of Freedom**: 4
- **P-value**: 0.002 (which is less than 0.05, indicating a statistically significant relationship)

Interpretation

A significant relationship exists between age and investment preferences. Older individuals (50+) tend to prefer tangible assets like gold and real estate, while younger individuals show a greater inclination toward formal investment products like mutual funds.

Correlation Analysis

Correlation analysis was conducted to examine the relationship between **financial literacy** and the preference for formal financial products.

- **Pearson Correlation Coefficient**: 0.52
- **P-value**: 0.001 (indicating a statistically significant positive relationship)

Interpretation

There is a moderate positive correlation between financial literacy and the preference for formal investment products. As financial literacy increases, the likelihood of investing in stocks, mutual funds, and bonds also increases.

Multiple Regression Analysis

To understand the factors that influence investment preferences, a multiple regression model was constructed with the following predictors: **income**, **financial literacy**, **age**, and **trust in financial institutions**. The dependent variable was the choice of formal financial products (stocks, mutual funds, government bonds).

- **Adjusted R^2**: 0.62
- **Significant Predictors**:
  - **Income ($\beta = 0.38$, $p < 0.01$)**
  - **Financial literacy ($\beta = 0.32$, $p < 0.05$)**
  - **Trust in financial institutions ($\beta = 0.27$, $p < 0.05$)**

Interpretation

Income and financial literacy were found to be the most significant predictors of rural investors' preferences for formal investment products. As income and financial literacy increase, so does the likelihood of choosing formal financial investments.

Discussion

Key Findings

- **Awareness**: Rural investors exhibit strong awareness of traditional investment products but have limited knowledge of formal financial options.
- **Preferences**: Gold and real estate are the preferred investments due to their perceived safety and familiarity.
- **Barriers**: Financial illiteracy, limited access to formal financial services, and risk aversion are the primary barriers preventing rural investors from adopting formal financial products.

Implications

- **Policy Recommendations:** Government and financial institutions must focus on improving financial literacy in rural areas and offer more accessible financial products.
- **Trust Building:** Banks and financial institutions should build trust in rural areas through transparent practices and customer-centric services.

Conclusion

The findings suggest that while rural investors are aware of traditional investment options, they lack the knowledge and confidence to engage with formal financial products. Financial literacy programs, better access to banking services, and more trust-building initiatives can help bridge the gap between rural investors and formal financial markets.

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भारत में जनसांख्यिकीय परिवर्तन–कारण एवं इसके प्रभाव

डॉ. सत्यनारायण मीना*

सार

किसी भी देश का समग्र विकास उस देश में निवास करने वाले लोगों में निहित होता है। देश के नागरिक खुशहाल, शिक्षित और स्वस्थ होते हैं तो उस देश को अधिक विकसित कहा जाता है। भारत विश्व में जनसंख्या की दृष्टि से विश्व में चीन के पश्चात् द्वित्तीय स्थान पर है और वर्तमान की जनसंख्या वृद्धि दर दृष्टिपात करे तो भारत शीघ्र ही सबसे बड़ी जनसंख्या वाला देश बनने की ओर अग्रसर है। अधिक जनसंख्या को कुछ विद्वान वरदान् तो कुछ अभिशाप मानते हैं। इस संबंध में कोई सर्वसम्मत मत नहीं है। भारत में जनसंख्या का वितरण विभिन्न राज्यों में असमान है और विभिन्न कारणों से एक राज्य से दूसरे राज्य में जनसंख्या का निरन्तर प्रवास होता रहता है। यह जनासांख्यिकीय परिवर्तन की भूमिका अदा करता है।

शब्दकोशः *विकसित, जनसंख्या वृद्धि, जनसंख्या का वितरण, जनसांख्यिकीय परिवर्तन।*

प्रस्तावना

जनासांख्यिकीय परिवर्तन का अर्थ

जनसंख्याशास्त्र एक ऐसा सामाजिक विज्ञान है जिसमें सामाजिक, आर्थिक एवं भौगोलिक कारकों के कारण, जनसंख्या की संरचना, वितरण, गति, परिवर्तन एवं संचरणशीलता की प्रक्रियाओं में हुए परिवर्तनों का अध्ययन किया जाता है। इसमें जनसंख्या के भावी स्वरूप में परिवर्तन की परिकल्पना की जाती है। इस शास्त्र से जनसंख्या के सिद्धान्तों तथा जनसंख्या की नीतियों का निर्माण किया जाता है।[1]

जनसंख्या की संरचना

भारत का क्षेत्रफल 32,87,263 वर्ग कि.मी. है, जो विश्व के कुल क्षेत्रफल का 3.3 प्रतिशत है। वर्ष 2011 की जनगणना के अनुसार भारत की जनसंख्या 121.09 करोड़ थी, जो कि विश्व की कुल जनसंख्या का लगभग 17.5 प्रतिशत रहा है। योजनाकाल में जनसंख्या की दृष्टि से "तीन नये भारतों" का निर्माण हो गया है। प्रतिवर्ष एक आस्ट्रेलिया का निर्माण होता है। वर्तमान में भारत की जनसंख्या लगभग 145 करोड़ अनुमानित की गयी है।[2] भारत की जनसंख्या में लगातार वृद्धि हो रही है इसे तालिका–01 में दर्शाया गया है।

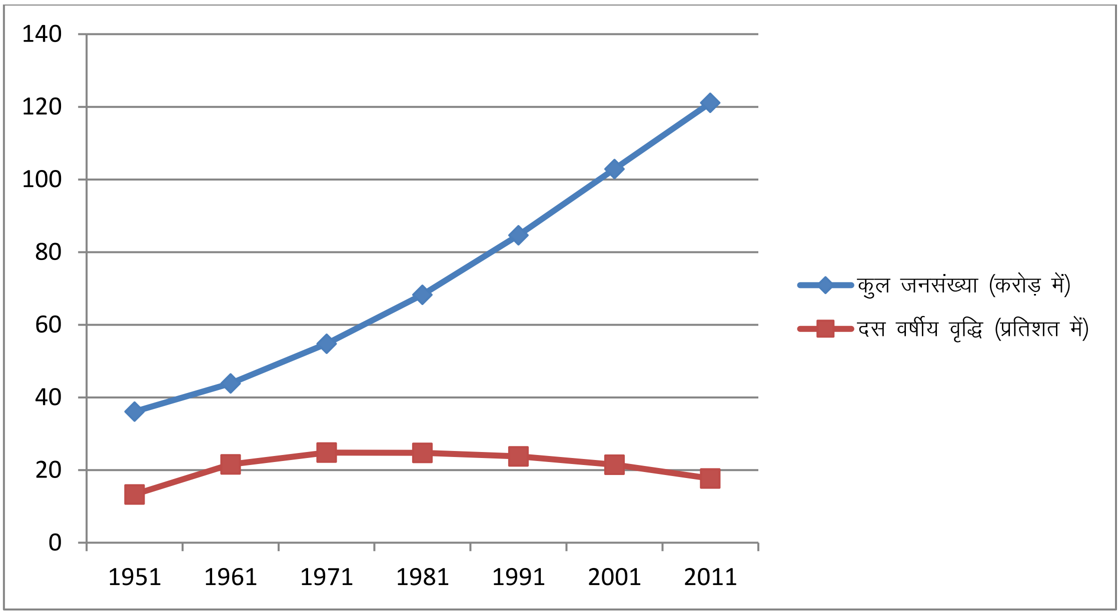
* सह–आचार्य(ई.ए.एफ.एम.), राजकीय स्नातकोत्तर महाविद्यालय, जमवारामगढ़, जयपुर, राजस्थान।

तलिका 1: 1951–2011 में भारत की जनसंख्या के आकार में वृद्धि

जनगणना वर्ष	कुल जनसंख्या (करोड़ में)	दस वर्षीय वृद्धि (प्रतिशत में)
1951	36.1	13.3
1961	43.9	21.6
1971	54.8	24.8
1981	68.3	24.7
1991	84.63	23.8
2001	102.87	21.5
2011	121.09	17.7

स्त्रोतः नाथूरामका, लक्ष्मीनारायण(2008), भारतीय अर्थव्यवस्था, जयपुरःकॉलेज बुक डिपो, पृ.74 व ओझा, बी.एल. एवं ओझा(2019–20), मनोज कुमार, भारत में आर्थिक पर्यावरण, जयपुरः आर.बी.डी. पब्लिशिंग हाउस, पृ.7.7

चार्ट 1: 1951–2011 में भारत की जनसंख्या के आकार में वृद्धि



लिंग अनुपात

लिंग अनुपात में प्रति हजार पुरूषों की पर महिलाओं की औसत संख्या का अनुपात दर्शाया जाता है। भारत में स्वाधीनता के पश्चात् अधिकाशंतः जनगणनाओं में लिंग अनुपात गिरने की प्रवृत्ति पाई जाती है। भारत में लिंगानुपात 1951 में 946, 1961 में घटकर 941, 1971 में और घटकर 930, 1981 में बढ़कर 934, 1991 में घटकर सबसे कम 927, 2001 में बढ़कर 933 व 2011 में बढ़कर 946 रहा है। भारत में सर्वाधिक लिंगानुपात केरल में पाया जाता है।[3]

शहरी और ग्रामीण जनसंख्या

जनसांख्यिकीय परिवर्तन में जनसंख्या के शहरीकरण एवं ग्रामीणीकरण में हुये परिवर्तनों को भी सम्मिलित किया जाता हैं। देश की आबादी की तुलना में कस्बों की आबादी में कई गुणा वृद्धि हुई है। विकास की प्रक्रिया के साथ–साथ देश में तीव्र गति नगरीकरण हो रहा है। विकसित देशों में शहरी जनसंख्या का प्रतिशत अधिक रहता है। 1951 से 2011 के दौरान नगरीय जनसंख्या के आकार एवं इनमें वृद्धि को तालिका–02 में प्रदर्शित किया गया है।

तालिका 2: 1951—2011 में नगरीय जनसंख्या का आकार एवं वृद्धि

जनगणना वर्ष	नगरीय जनसंख्या	
	करोड़ में	कुल आबादी का प्रतिशत
1951	6.16	17.6
1961	7.76	18.3
1971	10.70	20.2
1981	15.62	23.7
1991	21.76	25.7
2001	28.53	27.8
2011	37.7	31.2

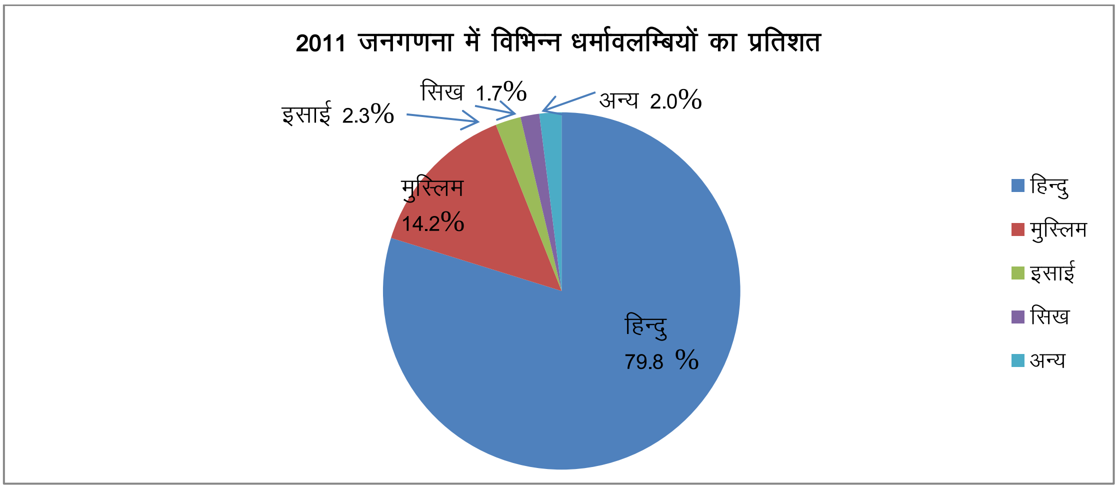
स्त्रोतः पेत्रोव, विक्टर (1987), भारत का जनसंख्या मूलक अध्ययन, जयपुरः राजस्थान पीपुल्स पब्लिशिंग हाउस(प्रा.)लि., पृ.205 एवं ओझा, बी.एल. एवं ओझा(2019—20), मनोज कुमार, भारत में आर्थिक पर्यावरण, जयपुरः आर.बी.डी. पब्लिशिंग हाउस, पृ.7.5

विभिन्न धर्मानुसार जनसंख्या

वर्ष 1951 में हिन्दुओं व सिखों का जनसंख्या में क्रमशः 84.1 व 1.9 प्रतिशत हिस्सा था, वह घटकर 2011 की जनगणना में क्रमशः 79.8 व 1.7 प्रतिशत रह गया। इसाई की प्रतिशत 1951 व 2011 की जनगणना में समान 2.3 प्रतिशत रहा है। किन्तु मुस्लिमों व बौद्धों की जनसंख्या में वृद्धि उल्लेखनीय रही है। मुस्लिमों की जनसंख्या का प्रतिशत 1951, 9.8 प्रतिशत था, वह बढ़कर 2011 में 14.2 प्रतिशत हो गया।[4] इस तथ्य को तालिका—03 में प्रदर्शित किया गया है।

तालिका 3: 1951—2011 में विभिन्न धर्मानुसार जनसंख्या का वितरण

जन—गणना वर्ष	हिन्दु जनसंख्या		मुस्लिम जनसंख्या		इसाई जनसंख्या		सिख जनसंख्या	
	करोड़ में	कुल जन—संख्या का :	करोड़ में	कुल जन—संख्या का :	करोड़ में	कुल जन—संख्या का :	करोड़ में	कुल जन—संख्या का :
1951	30.5	84.1	3.54	9.8	0.83	2.3	0.69	1.9
2011	96.63	79.8	17.22	14.2	2.78	2.3	2.08	1.7



चार्ट 2

कार्यकारी जनसंख्या

भारत में कार्यकारी जनसंख्या 1951 में 14.1 करोड़ थी, जो कुल आबादी का 39.1 प्रतिशत था। 2011 की जनगणना के अनुसार कार्यकारी जनसंख्या बढ़कर 47.8 करोड़ हो गई किन्तु इसका कुल आबादी में प्रतिशत में बहुत कम बढ़कर 39.4 प्रतिशत हो गया। आज भी लगभग 60 प्रतिशत जनसंख्या गैर–कार्यकारी की श्रेणी में आती है। इससे प्रकट होता है कि देश की एक बहुत बड़ी आबादी निराश्रित है। इस तथ्य को तालिका 04 में दर्शाया गया है।

तालिका 4: 1951–2011 में कार्यकारी एवं गैर–कार्यकारी जनसंख्या

जनगणना वर्ष	कार्यकारी जनसंख्या		गैर–कार्यकारी जनसंख्या	
	करोड़ में	कुल आबादी का प्रतिशत	करोड़ में	कुल आबादी का प्रतिशत
1951	14.1	39.1	22.0	60.9
1961	18.3	43	25.6	57
1971	17.5	35	37.2	65
1981	22	37.6	46.4	62.4
1991	31.5	37.8	52.9	62.2
2001	40.2	39.2	62.3	60.8
2011	47.8	39.4	73.4	60.6

स्त्रोतः Vashistha, Dr.V.K. & Others, Economic Environment in India, Ajmera Book Co., Jaipur, p.8.9 & 9.10

जनासांख्यिकीय परिवर्तन के कारण

- **सामाजिक कारण**

जनासांख्यिकीय परिवर्तनों में एक महत्वपूर्ण कारण सामाजिक कारण है। भारतीय गांवों में आज भी समाज रूढ़िवादिता से ग्रसित है। समाज के निचले तबके के लोग ग्रामीण परिवेश में अपने आपकों असहाय और असहज पाते हैं। इस कारण निचले तबके के लोग अवसर प्राप्त होते ही गांवों से पलायन कर एक स्थान से दूसरे स्थान पर प्रवासन करते है। इस कारण गांवों और शहरों दोनों ही स्थान पर जनासांख्यिकीय परिवर्तन होते हैं।[5]

- **आर्थिक कारण**

आर्थिक कारण जनासांख्यिकीय परिवर्तनों का एक मुख्य कारण है। लोग एक स्थान से दूसरे स्थान पर आजीविका कमाने के लिए प्रवास करते रहते हैं। इसका नवीनतम उदाहरण जयपुर शहर में मिलता है, जो हीरे–जवाहरात के निर्यात के लिए विश्व भर में प्रसिद्ध है। यहां पर सोने–चांदी के काम करने वाले कारीगर अन्य राज्यों से राज्यों से आकर अपनी आजीविका को कमा रहे हैं। आज जयपुर में अकेले पश्चिम बंगाल के लाखों की कारीगर आकर बस रहे हैं। इससे जयपुर शहर का जनासांख्यिकीय परिवर्तन तीव्र गति से हो रहा है। फल–सब्जी विक्रेता भी काफी बड़ी तादाद में अन्य राज्यों से आकर प्रवास कर रहे हैं। जयपुर में ई–रिक्शा के चालक भी अन्य राज्यों से आकर ई–रिक्शा चला रहे हैं। सन् 2023 में मूल राज्यों से दूसरे राज्यों में प्रवासी कामगारों की संख्या 40.21 करोड़ थी। पलायन में 48 प्रतिशत योगदान पांच राज्यों–उत्तर प्रदेश, महाराष्ट्र, आन्ध्र प्रदेश, बिहार और पश्चिम बंगाल का था। उत्तर प्रदेश से महाराष्ट्र में 11,66,753, दिल्ली–एनसीआर में 919207 व गुजरात में 374311, बिहार से दिल्ली–एनसीआर मे 410601 व पश्चिम बंगाल में 315180, राजस्थान से गुजरात में 204967, महाराष्ट्र म 180959 व हरियाणा में 66919, मध्य प्रदेश से महाराष्ट्र में 195855 व राजस्थान में 61303 तथा महाराष्ट से मध्य प्रदेश में 61348 प्रवासी मजदूर कार्यरत थे।[6]

- **सुरक्षा संबंधी कारण**

सुरक्षा संबंधी कारणों की वजह से भी जनासांख्यिकीय परिवर्तन होता है। तनावग्रस्त राज्यों से सुरक्षित राज्यों में पलायन होता है। राज्यों में भी एक स्थान से दूसरे स्थान पर पलायन होता है। जम्मू कश्मीर में कश्मीर घाटी से जम्मू में पलायन होता आया है। असंख्य कश्मीरी पंड़ितों ने घाटी को छोड़कर राज्य के अन्य भागों में पलायन किया है। उत्तर–पूर्वी राज्यों खासकर मणिपुर की घटनाओं ने भी पलायन की समस्या को बढ़ाया है।[7]

- **अवैध घुसपेठ**

अवैध घुसपेठ भी जनासांख्यिकीय परिवर्तन को प्रभावित करता है। भारत के पड़ौसी देशों में विशेषकर बंगलादेश, म्यांनमार, श्रीलंका में राजनीतिक एवं सामाजिक कारणों से लाखों की संख्या में अवैध घुसपेठियां भारत में प्रवेश करत रहते हैं। अवैध घुसपेठ से भारत जैसे विकासशील देश की अर्थव्यवस्था एवं सुरक्षा पर गहरा असर पड़ता है। भारत के प्रमुख शहरों के आसपास बांग्लादेशियों की कॉलोनियां देखी जा सकती है।[8] सीमाओं पर ठोस निगरानी व्यव्स्था कमी अवैध घुसपेठ को बढ़ावा देती है। चन्द रूपयों में विदेशी घुसपेठियां भारत में घुस जाता है और यहां पहुंचने पर उसे सभी सरकारी दस्तावेज पहले से ही तैयार मिलते हैं। टी0वी0 चैनलों पर दिखाया जाता है कि किस तरह खुफिया रास्ते हैं, जिनके एक ओर भारत और दूसरी बंगलादेश आसानी से पहुंचा जा सकता है। फर्जी दस्तावेज तैयार करने के लिए गिरोह बने हुये हैं, जो विदेशियों के भारत पहुंचने पर ही उपलब्ध करा दिये जाते हैं। ये विदेशी ग्रामीण व छोटे कस्बों तक फैल चुके हैं। विदेशियों में संगठित आंतकवादी ग्रुप के सदस्य भी भारत में आ जाते हैं।

जनासांख्यिकीय परिवर्तन के प्रभाव

सकारात्मक प्रभाव

जनासांख्यिकीय परिवर्तन सकारात्मक एवं नकारात्मक दोनों तरह के प्रभाव दृष्टिगोचर होते हैं। सकारात्मक प्रभावों को निम्न बिन्दुओं में प्रकटीकरण किया गया हैः–

- **आर्थिक प्रभाव**

जनासांख्यिकीय परिवर्तन का सबसे महत्वपूर्ण प्रभाव आर्थिक गतिविधियों पर पड़ता है। बड़े–बड़े शहरों में कामगारों की पूर्ति छोट एवं ग्रामीण क्षेत्रों से होती है। बिहार, उत्तर प्रदेश, मध्य प्रदेश जैसे राज्यों से जनाधिक्य अधिक होने के कारण जनसंख्या का एक बड़ा भाग अपने जीवन व्यापन के लिए दिल्ली, मुम्बई, अहमदाबाद जैसे शहरों में प्रवास करता है। हांलाकि ये अधिकतर अनौपचारिक क्षेत्र में कार्य करते हैं, किन्तु इनका महत्व इन राज्यों के विकास में बहुत अधिक रहा है। खासतौर पर निर्माण, रिक्शा ट्राली खीचने में, चौकीदारी करने मे, फल–सब्जी विक्रेता के रूप में, धोबी के काम में, इलेक्ट्रिशियन के काम में इन प्रवासी कामगारों का अहम् योगदान देखा जा सकता है। सबसे बड़ी बात तो यह है कि ये कामगार सस्ती दरों पर कार्य करने को तत्पर हो जाते हैं। पंजाब में फसल कटाई दौरान लाखों की संख्या में बिहारी मजदूरों की मांग बढ़ जाती है। अहमदाबाद की मिलों में राजस्थानी मजदूरों का बहुमत रहता है। 1991 की जनगणना के अनुसार 22 करोड़ 60 लाख लोगों ने देश के भीतर अपनी जगहे बदलीं उनमें से 8.8 प्रतिशत अर्थात् 1 करोड़ 73 लाख लोग रोजगार के लिए एक स्थान से दूसरे स्थान पर गए।[9]

- **सामाजिक प्रभाव**

जनासांख्यिकीय परिवर्तन के कारण विभिन्न राज्यों से प्रवासी मजदूर एवं कामगार बड़े शहरों में निवास करते हैं तो उनमें आपसी भाई–चारा पनपता है। फिर चाहे वे किसी भी धर्म, जाति, पंथ के हो उनमें अपनत्व की भावना की उत्पन्न होती है। यही हमारे देश की विविधता में एकता की कहानी कहती है। इसका सबसे बड़ा उदाहरण मुम्बई की धारावी झोपड़पट्टी का लिया जा सकता है।[10] जिसमें विभिन्न वर्गों के लोग

एक साथ मिलकर त्यौहारों का आयोजन करते हैं और उसमें भाग लेते हैं। पंजाब से लेकर तमिलनाडु के लोग ऐसे आयोजनों में सक्रिय भागीदारी अदा करते हैं।

नकारात्मक प्रभाव

जनासांख्यिकीय परिवर्तनों के कारण होने वाले नकारात्मक को निम्न बिन्दुओं में स्पष्ट किया गया है:—

- **सेवाओं पर विपरीत प्रभाव**

जनासांख्यिकीय परिवर्तनों के कारण जनसंख्या का जमावड़ा बड़े शहरों में हो जाता है, जिसके कारण इन शहरों की सेवाओं पर दबाव पड़ जाता है और ये सेवाएं चरमराजाती है। बढ़ती आबादी के कारण शहरों में परिवहन, पानी, बिजली, अस्पताल आवास जैसी सुविधाओं नाकाफी सिद्ध हो रही है। रेलों में महीनों पहले ही टिकट फुल हो जाते हैं। मुम्बई लोकल ट्रेनों की भीड़ इसका सबसे बड़ा उदाहरण है, जहां पर एक दिन यात्री भार लाखों में आता है। यात्रीगण इनमें लटकर और जान जोखिम में डालकर अपना सफर करते देखे जा सकते हैं। खासतौर सुबह और सांय को जब ऑफिस में यात्रीगण आते जाते हैं। अजमेर जैसे शहर में गर्मियों के दिनों में घरों में दो—तीन दिन के अन्तराल से पानी आपूर्ति होती है क्योंकि पानी की मांग अधिक होने पर पूरे शहर को एक साथ पानी नहीं दिया जा सकता है। जयपुर में भी प्रवासियों के आने के कारण पानी की मांग बढ़ रही है। प्रवासियों को यह ज्ञान ही नहीं होता है कि राजस्थान में पानी अनमोल होता है। इसके विपरीत वे पानी का अपव्यय करते रहते हैं।

- **कानून एवं व्यवस्था की समस्या व अपराधों में वृद्धि**

जनासांख्यिकीय परिवर्तनों के कारण प्रवासरत राज्यों में अधिक भीड़भाड़ हो जाती है और अधिक जनसंख्या के कारण प्रशासन के समक्ष कानून एवं व्यवस्था को संभालना कठिन हो जाता है। अन्तर्राज्यीय अपराधी राज्य में प्रवेश कर अपराध फरार हो जाते हैं। ये कामगारों एवं मजदूरों के भेष में आकर जघन्य अपराध कर भाग जाते हैं। प्रवासियों की आड़ में विदेशी अपराधी भी राज्यों में प्रवेश कर जाते हैं। जयपुर में एक ऐसा ही घटना घठित हुई थी जिसमें बंगलादेशी अपराधी ने स्थानीय बंगलादेशियों की मदद से जयपुर की पॉश कॉलोनी में लूटपाट के साथ घर की मालकिन के साथ दरिदंगी कर बंगलादेश भाग गया था और उसे आज तक भी पकड़कर सजा नहीं दी जा सकी। पश्चिम बंगाल के प्रवासियों की आड़ में बंगलादेशी पूरे भारत में घुसपैठ करते रहते हैं क्योंकि दोनों की एक भाषा एक ही है। आवागमन के साधनों में बढ़ोतरी होने के कारण अपराधी दिन में आकर अपराध कर उसी दिन वापस भाग जाते हैं। ऐसे अनेक उदाहरण है जब घुसपैठियों को उनके मूल देश में भेज दिया जाता है और फिर से भारत में आकर राज्यों में प्रवासियों के रूप में कार्य करने लग जाते है।

- **स्थानीय नागरिकों के हितों के विपरीत**

जनासांख्यिकीय परिवर्तनों के कारण स्थानीय लोगों में बेरोजगारी उत्पन्न हो जाती है। अधिकाशंतः अनौपचारिक क्षेत्र में भी प्रवासी मजदूरों के आगमन से बेरोजगारी की समस्या अधिक बढ़ गयी है। सब्जीवाले, कारीगर—बेलदार, फल विक्रेता, ई—रिक्शा चालक, हजाम, इलेक्ट्रिशियन, चौकीदार जैसे काम करने वाले प्रवासियों की बड़े शहरों में भरमार हो रही है। इस कारण इन शहरों में इन क्षेत्रों में रोजगार खोजने वाले स्थानीय नागरिकों के रोजगार पाने का संकट बढ़ता ही जा रहा है।

- **पर्यावरण का क्षरण**

जनासांख्यिकीय परिवर्तनों के कारण जनसंख्या में वृद्धि होने के कारण बड़े शहरों में आवागमन के साधनों में बेतहाशा बढ़ोतरी हो जाती है, मांग होने के कारण उत्पादन को बढ़ाना होता है। कल—कारखानों में अधिक काम होने के कारण पर्यावरण को क्षति पहुंचती है। आज शहर कचरे के ढ़ेर बनते जा रहे हैं, जिनमें न तो शुद्ध वायु मिलती है और न ही शुद्ध पीने के लिए पानी।

- **राज्य सरकारों की जनसंख्या नीतियों को अप्रभावी बनाना**

जनासांख्यिकीय परिवर्तनों के कारण प्रवासियों की संख्या बढ़ जाती है। इस कारण राज्य जिसमें प्रवासी अधिक आ जाते है, जिसके कारण उस राज्य की जनसंख्या नियत्रंण नीति अप्रासंगिक हो जाती है। राजस्थान में जनसंख्या नीति होने के बावजूद प्रवासियों की संख्या में वृद्धि होने के जनाधिक्य बढ़ता ही जा रहा है।

- **शोषण के शिकार**

प्रवासी मजदूर को शोषण का शिकार होना पड़ता है। इनको दी जाने वाली मजदूरी काम के अधिक घण्टें होने पर कम दी जाती है। उनकी निरक्षरता और गरीबी का फायदा उठाकर बिचौलिए काम दिलाने के लिए मजदूरी में एक बड़ा भाग कमीशन के रूप काट लेते है। महिला मजदूरों का यौन शोषण आम बात है। वे बंधुआ मजदूर बनकर रह जाते हैं।

निष्कर्ष

जनसांख्यिकीय परिवर्तन एक सामान्य प्रक्रिया है जिसे पूर्णतया रौकना एवं नियत्रंण करना असंभव है। जनासांख्यिकीय परिवर्तनों के कारण राज्यों पर पड़ने वाले विपरीत प्रभावों को नियंत्रित करने हेतु केन्द्र एवं राज्यों के स्तर पर ठोस नीति का निर्माण किया जाये। केवल औपचारिक क्षेत्र में ही कामगारों को दूसरे राज्यों में प्रवास करने को बढ़ावा दिया जाना चाहिए। प्रवासरत राज्यों में नागरिकों के पंजीयन की अनिवार्यता की जाये ताकि यह पता चल सके कि वह भारत का ही वास्तविक नागरिक है अथवा कोई विदेशी घुसपैठिया। इस प्रकार पंजीनयन से अपराध पर नियत्रंण होगा।

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PROSPECTS AND CHALLENGES IN ONLINE EDUCATION

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ABSTRACT

Technology breakthroughs, shifting social demands, and the global movement toward digital solutions-particularly during and after the COVID-19 pandemic-have all contributed to the exponential expansion of online education. These days, online education is a cutting-edge and practical tool for boosting university competitiveness, satisfying the many demands and preferences of educational service users, and putting the idea of continuous education into practice. This establishes the significance of researching and outlining trends and opportunities for the growth of online learning in India. The article's goal is to examine the characteristics, issues, and potential future paths of online education. It should be mentioned that in addition to students, young people who live in remote places or who are unable to balance job and school can also receive an online education. This study set out to ascertain the benefits of online learning as well as the difficulties that lie ahead. According to the study's findings, online education is defined as distance learning that uses internet-based technology, e-teaching and learning, and internet-based delivery. Universities, colleges, administrators, students, parents, and other stakeholders will need to adapt to this new teaching and learning paradigm. The study used a qualitative methodology, and the researcher gathered data from secondary sources, such as recent newspapers and journals, in addition to conducting brief mobile phone interviews with students at private institutions pursuing various courses. The study's conclusions demonstrate that, despite the fact that online learning presents a number of difficulties for both students and teachers, carefully managing these difficulties can have the potential to foster a positive learning environment in the field of education as an alternative teaching and learning method that produces favorable results in every way.

KEYWORDS*: Online Education, Internet Technologies, Online Learning, COVID-19 Pandemic.*

Introduction

Online education is a type of education in which students use the internet on their personal computers while avoiding traditional classroom settings. Since there are no other options for educating the public, online teaching and learning has recently become a buzzword in the world of education pupils in the course. The 21st century's fast evolving information technologies have a direct impact on the educational system. Their spread necessitates that the educational system adjust to the new reality, address pressing problems, and create new techniques and formats of instruction. As a result, it has been the focus of more research over the last 20 years about the use of online education and the incorporation of its component parts, including online or electronic courses, into the educational process. These days, online education is a cutting-edge and practical tool for boosting university competitiveness, satisfying the many demands and preferences of educational service users, and putting the idea of continuous education into practice. Studies on online education have been carried out to find opinions

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from many angles. Toquero (2020) carried out research to look into the potential and difficulties during COVID-19. It was said that not much research had been done on how the pandemic affected education as research pertaining to health has gained interest. This study suggested that educational delivery methods be improved; courses in higher education should be integrated into versions that are compatible with new technology. There are many opportunities to embrace digital learning.

However, a study on students' opinions of "online learning" in the context of COVID-19 found that many students in Pakistan's underdeveloped areas lacked access to cyber technology, making online education a difficulty for them (Adnan & Anwar, 2020). Thus, it was imperative that online education be implemented during COVID-19 in order to learn about the actual opportunities and challenges that may vary from region to region in Indonesia (Aji et al., 2020), where it was claimed that blended learning—a combination of online and offline learning—was employed in some schools prior to the pandemic. E-learning was still viewed as auxiliary at the time (Pham & Ho, 2020) and was only utilized for certificates and a few extra tests. But the pandemic has changed the situation. Education must now be conducted digitally or online (Alam et al., 2021). The proliferation of internet technological gear has made it possible to spread education through a variety of methods, including teaching and learning. As Learning Management Systems (LMS) vie for students' attention in schools, teaching and learning has become more straightforward (Sener, 2010; Fu, 2010; Okamoto, Cristea, & Kayama, 2001). The world is seeing a significant mortality toll as well as widespread fear and anxiety as a result of the Covid-19 outbreak. Nations around the world are working to close the gap and reduce the number of pupils that are lost as a result of the continuous pandemic. However, the results of online education are not always advantageous to the student body, as they have exposed certain drawbacks to the online teaching and learning environment, leading to widespread worries about the contentious topic of online teaching and learning during COVID-19. Taking this into account, the current study attempts to highlight the opportunities and difficulties faced by nations with less developed technology than those endowed with high-tech equipment.

Review of Literatures

Infrastructure Gaps Research shows that many communities, particularly low-income and rural areas, lack suitable digital devices and dependable internet connectivity (e.g., Korkmaz & Toraman, 2020). The Digital Divide According to Van Dijk (2020), marginalized people are particularly impacted by the difference in access to technology. Problems with Engagement the dynamic and captivating character of traditional classrooms is frequently difficult for online learning to mimic (Sun & Chen, 2016). When compared to in-person instruction, learning outcomes studies (e.g., Bernard et al., 2004) show inconsistent results in terms of information retention and skill acquisition. Studies have shown that the lack of social interaction among online learners causes them to feel isolated (e.g., Rovai, 2002). According to Hartnett (2016), self-directed learning can result in low motivation and procrastination. Students from far-off places can obtain high-quality education through online learning (Allen & Seaman, 2017). Students may manage their education with their personal and professional obligations thanks to self-paced courses. Because there is no need for physical infrastructure, online education is more cost-effective for both institutions and students (Means et al., 2009). Many students can be accommodated on digital platforms without incurring big additional fees. According to Huang et al. (2019), using AI, VR, and AR into e-learning improves interaction and engagement. Personalized learning experiences are made possible by learning analytics, which offer insights on student performance. For working professionals, online education facilitates ongoing skill development and upskilling (Bozkurt & Sharma, 2020). Numerous subject areas are covered by the courses offered by platforms such as edX and Coursera. For fair access, infrastructure and reasonably priced internet are essential (UNESCO, 2021). It is crucial to give educators professional development opportunities to improve their digital skills (Rapanta et al., 2020). Engagement problems can be resolved by implementing interactive components like gamification and group projects (Zhao et al., 2020). Academic integrity can be enhanced by creating authentic tests and using proctoring technologies (Sotiriadou et al., 2020).

- **Aim:** The article's goal is to examine the characteristics, issues, and potential future paths of online education.
- **Methods:** The definition of online education was understood using the logical method, and trends that follow the growth of online education were found using system analysis techniques. Comparative analysis allowed for the comparison of the phenomena to determine their similarities and differences.

A Few of the Technologies Powering Online Education

In higher education learning contexts, a number of technologies have shown themselves to be successful in elevating teaching and learning. Among these are Desire 2 Learn, moodle, eCollege-classlive pro, Blackboard, Angel, WebCT, WebEx, Skype, and MoOCs. Effective teaching and learning could be improved by utilizing these tools interchangeably. These technologies are a component of information and communication technologies (ICT), which have created e-learning and improved teaching and learning in higher education. The use of e-technology in teaching and learning first appeared to be led by private universities and colleges, however today all universities and ICT is being used by both state- and non-state-governed colleges to deliver their courses (Sander & Gale, 2012; Tella, 2011). According to Tella (2011), p. 56, and Lai & Savage (2013), e-learning makes use of "ICT [Information Communication Technologies] to support learning." Thus, information and communication technology has emerged as "a central construct that enables and/supports the process of e-learning" and has made significant improvements over the past three decades (Tella, 2011, p. 56). Faculty and program administrators have employed course management systems (CMS) with software programs that use web-based resources to construct learning activities for students in order to successfully use e-learning in teaching.

- **Results:** The evolution of globalization, informatization, electronic culture, and technical openness has even impacted sectors like education that haven't altered in centuries.

First of all, budgeted educational institutions are working more efficiently. This type of implementation includes both developing new procedures and streamlining current ones (online scheduling, digital technology in lectures, etc.) (Online courses for remote learning). Since regulatory changes are not keeping up with technological advancements, information technology in this field mostly enhances the functionality of the current system.

The second is the proliferation of commercial sector-provided paid online courses and educational services. This market niche for online learning is its most adaptable and sophisticated element, as the competition is getting closer to perfection. Numerous representatives of medium-, small-, and micro-businesses that focus on specific market niches coexist with major global corporations. The almost total lack of regulation is what makes the latter's operations unique by the government, professional associations, and, frequently, the covert character of their operations. Educational services provided by bloggers, freelancers, financial advisors, tutors, and other Internet users cannot be traced if the work and revenue of comparatively large enterprises that are at the forefront of their respective fields of activity may be tracked. Typically, social media network platforms are used to access these kinds of services.

Thirdly, these are online resources that offer free educational services and educational material. From an international standpoint, blogs, topical forums, the online encyclopedia (Wikipedia), and blog platforms (such as for individuals involved in self-education, Habrahabr is a valuable source of information. Additionally, social media platforms like Instagram and YouTube provide free instructional resources in applied fields of expertise (such as coding, sewing, plumbing, etc.). The issue of updating the educational system has become more pressing due to the apparent advancement of digital technologies. One notable example of this development is online education, which, through the Internet, spans many society and plays a significant role in its advancement. Studying the experience of remote learning and wanting to comprehend its potential in relation to the usage of new information and communication technologies (ICT) initially sparked the theoretical interest in online education in the process of schooling. According to V. Kirsanov and V. Chernenko, distance learning in the information age is a process where "a teacher and student engage in purposeful mediated interaction based on information technologies, primarily using television and telecommunications" (Kirsanova & Chernenko, 2012). Studying the experience of remote learning and wanting to comprehend its potential in relation to the usage of new information and communication technologies (ICT) initially sparked the theoretical interest in online education in the process of schooling. According to V. Kirsanov and V. Chernenko, distance learning in the information age is a process where "a teacher and student engage in purposeful mediated interaction based on information technologies, primarily using television and telecommunications" (Kirsanova & Chernenko, 2012).

Researchers were interested in "e-learning," another term that is frequently used to describe online education, when the new law "On Education" was adopted. In D.N. Mamatova's writings, it attracted cognitive attention (Mamatov, 2015), T.A. Vorobieva (2014), Yu. Navolochnaya (Navolochnaya, 2014), and others. Researchers typically don't make a distinction between e-learning and distance learning. Additionally, research on the prevalent discursive practices surrounding the phrase "online education" demonstrates that e-learning and remote learning are interchangeable.

As a result of this arbitrary interpretation of the terms, experts identify at least three types of online learning when describing it use in the educational system: 1) A teacher and student interacting synchronously (in a single time mode) through telecommunication technologies; 2) Group viewing of video lectures that instructors from different colleges have recorded; 3) Using electronic information packages designed by experts for a particular training course (massive open online courses), asynchronous self-education.

One of the opportunities for the growth of online learning in an educational institution, according to scientist A.A. Khalikov, is asynchrony, in which the student learns and gains knowledge in a particular field. They are supervised and guided in the proper path by the instructor and the educational establishment. The tutor is the primary person with whom the student interacts (Khalikov 2013). We base this article on T. Anderson's (2011) idea of online learning, which we believe to be the most consistent. It stipulates that the entire educational process takes place entirely online, with the outcome being totally or nearly fully aligns with full-time schooling outcomes (Danver, 2016). Online learning is typically conducted through a particular platform where knowledge is acquired, and its structure is similar to but distinct from engagement in the classroom that must be repeated (Horn & Staker, 2014). The online learning model (Fig. 1), which incorporates all participants in the online learning process and its essential components—teacher, student, and knowledge—is unquestionably advantageous to Anderson's notion. This method enables you to ascertain the connections among different components, and online learning form typologies do not necessitate rigorous classification because each form may represent a distinct collection of qualities.

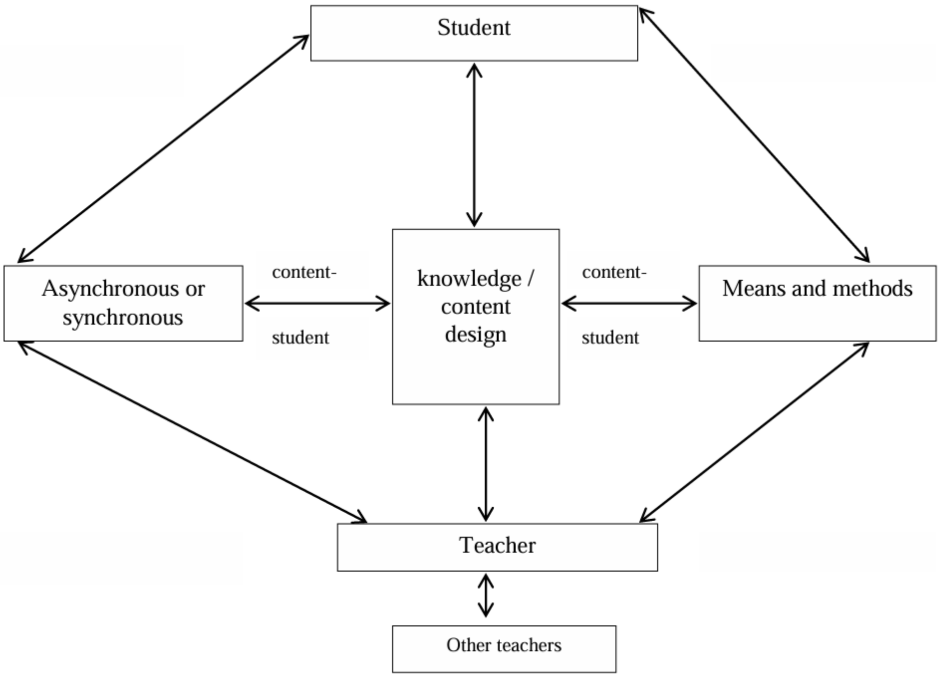

Figure 1. T. Anderson's online learning model

Source: Compiled by the author based on (Anderson, 2011)

The research that was done makes it possible to define and fill the content volume of online education as asynchronous or synchronous teacher-student interactions. Three characteristics stand out to us: 1) Real-time communication takes place between the instructor and the pupil; 2) ICT resources are used to facilitate communication between the instructor and the students; 3) The interaction between the learner and the instructor occurs virtually. The assumption that online education needs to be kept apart from other types of education stems from the fact that it incorporates elements of those other kinds of education that are equally important for its features transforms into a distinct, essentially novel form of education that occurs in a remote mode of one-time interaction between a teacher and a student and is made possible by information and telecommunication networks. It comes after distance and classroom-contact education. Although it has been utilized for a long time on the Internet for commercial trainings and various forums, this is a radically new kind of education that has not yet been implemented in the system of higher education for professionals. It lacks legislative legitimacy, which is particularly significant because it does not address the range of features offered by remote learning or e-learning solutions.

Researchers such as Deinega (2018), Kryzhanivska (2016), Opanasyuk (2016), Osetsky & Tatomir (2017), Romanovsky, Kvasnyk, Moroz ets (2019), and Shabanov (2018) have examined tendencies that coincide with the growth of online education.

- The expanding significance of large-scale online course certification. This organic tendency is linked to the need to regulate the caliber of online learning and the aim to guarantee that it is comparable to traditional classroom instruction in various nations. Expert evaluations and a range of ratings are being developed as certification options for online courses.
- Extensive use of video resources in online course content. Online courses are increasingly required to include animations, presentations, and videos from well-known social networks, particularly given the caliber of mobile communications. The number of people using smartphones and having access to the Internet is increasing annually. Webinars, however, are becoming less effective.
- Using game learning actively. Since visual perception of information greatly increases, game technologies in the classroom allow for a greater level of engagement with the subject matter and allow for a diversification of educational interaction methods. The internalization of learning resources. Furthermore, game technologies offer chances to select personal learning approaches, evaluate decision-making and action patterns, and grasp instructional content.
- In addition to being short-term, online learning is growing more adaptable and varied. Given that the majority of online learners are employed individuals with a foundational education who wish to advance their credentials or get a master's degree, a new field of endeavor, their training prospects are severely constrained. As a result, brief and varied instructional materials (text, video, presentations, etc.) make up the content of popular and successful online courses. It is simple to study and enables you to use the knowledge at any time and in any location.
- Incorporating aspects of augmented and virtual reality into online learning. Since virtual reality technologies have become more widely available and have demonstrated their efficacy in the professional training of doctors, historians, and others, this tendency has emerged as a result of the advancement of electronic technologies. Because of the utilization of such technology, it becomes feasible to emotionally fully engage with the process being studied, and there are chances to develop and enhance the abilities that are required, among other things. The capacity to perceive items and processes, user safety (no worries about breaking the object), etc. are some benefits of virtual reality technology. However, because of its expensive cost and difficult development for the average user, this technology is unlikely to be extensively adopted very soon.
- Active modification of current material to satisfy listeners' evolving needs. This trend shows up as ongoing updating and modernization of content. Updates to information and technology are less common in most places, but training demands the content might change. As a result, the businesses that closely monitor legislative changes and enhance and broaden the available resources emerge victorious. Consequently, "road maps"—features that intentionally enable you to acquire a specific skill—are becoming more and more common in online courses, making online learning more individualized.
- Creation of online courses that facilitate social learning and mentoring. Corporate online training is growing as a result of more businesses attempting to utilize its potential for employee training and development. These days, it can be found on specialist websites, internal chat rooms and forums, and social networks. Stronger internal company needs to study in this manner have been the trend in recent years, and corporate online project certification criteria have been more stringent. Corporate courses help firms meet their criteria more fully, save internal resources for employee training, and facilitate feedback between mentors and new hires.

However, there are a number of linked issues with the growth of online education in addition to all the advances brought about by the entry of various new technologies into the educational sector. The field of online education faces several urgent issues that must be resolved to raise the standard of instruction.

The development of a flexible online learning environment for instructors and students is one of the primary approaches to resolving these issues. During the adaption phase, educators must master the fundamentals in order to instruct and for students to learn. Getting educational institutions ready for the integration of information and communication technologies is the next step. Establishment of a common educational standard for online learning that includes different complexes and programs, instructional aids, methodological guidelines, and electronic textbooks.

Pedagogical innovations can significantly aid in the resolution of these issues. New research in the area of information technology use in pedagogy is required for this, in order to examine the impact of information technologies on instructors, students, and pedagogy in general. Massive online open courses, which serve as a bridge that can bridge the gap between the educational process and the contemporary information space, are, in our opinion, the most promising avenue for the advancement of the educational process in the electronic space.

Problems of the Development of Online Education

Problem	Description
Inadequate teacher and educator preparation	One of the key components of online learning is the instructor's preparedness. Making sure that educators are ready for these advancements is crucial when incorporating computer technology into online learning. The foundation of effective online learning is educators' self-assurance that they can master all technologies and use them effectively. The growth of online learning and contemporary pedagogy will be aided by widespread information technology training for educators and teachers.
Students' lack of willingness	Students encounter various challenges during the online learning process, including their unique personal traits, the learning environment, and their proficiency with computer technology and Internet resources. Today, There aren't any online programs that consider specific individual student characteristics, and it's probably not feasible to develop such programs. As a result, an educational online environment that aims to accommodate all students' needs for online learning must be developed.
Restricted application of the information utilizing technology in educational settings	Time and money are two of the most important resources needed for this deployment. A variety of new courses, policies, manuals, directions, and online lesson examples. Educational establishments that have chosen to incorporate online. All of the equipment required for their variety of educational offerings must be present. Well-trained educational institutions are necessary to provide decent online learning opportunities.
Absence of a conducive atmosphere	The environment between the teacher and the students is frequently intense in traditional learning. The typical educational procedure "put students under some pressure," and occasionally the teacher as well. In general, the majority of pupils would to save tension, cheerfully skip the entire learning procedure. Teachers themselves don't know why they should instruct people who don't want to learn. Online training ought to address these issues as a result. Teachers merely "give" information during online learning, and students employ self-study as their sole technique of converting it into meaningful knowledge. Additionally, the computer is given the ability to track progress. This ought to foster a positive learning atmosphere. However, as history has demonstrated, people's awareness was somewhat impacted by the emergence of information technologies. Both sides of the educational process typically maintain conservative viewpoints.

Absence of a unified online learning educational standard	This is because, if an external educational program was not created by them, the majority of teachers would not want to work for it. Other educators are hesitant to offer their own programs that they have created for the potential for lawfully adhering to them. Additionally, every educational establishment seeks to create its own curriculum that it believes to be the best available. The educational process is directly impacted by the absence of a single standard, at least with regard to the core concepts of education. We believe that the sole educational standard for online learning will enable the elimination of subpar courses in this field. The learning process will benefit from this information.

Since using huge online open courses effectively would need the teacher to make the most of every part of his professional life, it will enable him to advance to a new level of professional activity and pedagogical skills action. At the same time, the teacher has a great deal of freedom to be creative when developing his own courses. In reality, nothing and no one can stop him from implementing all of his innovative ideas, presentations, and material presentations, as well as new methods for setting up training sessions and implementing control measures that "do not fit" into the framework of the educational process that the educational system has established. As the "creator" of their course, the instructor will have the freedom to depart from widely recognized educational norms. However, the development of open online courses will necessitate that the instructor possesses both extraordinary knowledge of the subject matter covered in the course and computer skills that beyond the typical "boundaries" of work in office applications. In additionally, innovative methods to the material's design and presentation formats should be used in conjunction with the creation of online courses.

However, the development of open online courses will necessitate that the instructor possess both extraordinary knowledge of the subject matter covered in the course and computer skills that beyond the typical "boundaries" of work in office applications. In additionally, innovative methods to the material's design and presentation formats should be used in conjunction with the creation of online courses. It is crucial to remember that one of the fundamental tenets of establishing huge online courses is their free distribution, thus the instructor shouldn't view his own online course as a business venture. An open online course should be developed with the intention of growing their listenership rather than for financial gain. This will enable the instructor to draw students from various geographical areas to his class. Teachers as well as students may find an online course interesting. As a result, it will be wise to allow students and the author of the project to communicate during development. In addition to responding to inquiries from students, in order to get comments and suggestions for enhancing the course's content and conduct methods. At the same time, effective efforts to develop and market free online courses will contribute to raising the teacher's standing and authority in the classroom. The teacher will be able to collaborate with other educators as a result. Additionally, it will enable him to take part in large-scale open online training programs at the locations of top firms in this sector, as well as the development of collaborative, engaging educational courses and other initiatives of a similar nature.

The following qualitative and quantitative advancements will be possible for educational institutions as a result of the adoption of mass online education, which will enable the educational process to reach a new level:

- Increasing pupils' access to training and education;
- Raising the standard of education;
- Decreasing the training's value;
- Lowering the price of delivering the learning process;
- Boosting revenue from educational endeavors by drawing in more listeners;
- A rise in the quantity of classes offered;
- Active instruction in programming not just foundational, but also further education, professional retraining, and advanced training

The utilization of communication and information resources for activities associated with the educational process as well as for educational objectives. Consequently, the instructor will join the worldwide "educational method," will continue to grow as a teacher and professional, provide many students with access to knowledge, and assist them in becoming professionals.

The Difficulties Going Forward

Even though internet technology has advanced and been applied in both business and education, there are still present and predictable issues that users of technology should think about and address as they move forward. A few of these among the difficulties are:

- Technology accessibility and equity.
- Enhancing performance.
- Delivering affordability and value.
- The issue of hidden costs.
- Knowledge of computers.
- Significant self-control is necessary.
- Not suitable for all learning styles and types.
- Little social contact.
- Maintaining motivation.
- Improving spoken communication is challenging.
- Technical issues
- Absence of necessary internet attributes.

Insufficient instruction for instructors and online administrators (Salsbury (n.d.), paras. 1-4; Whitehead, 2005, paras. 3-6; Weaknesses of Online Learning, paras. 1–5).

Discussion

The adoption of contemporary educational ideas, such as transparency in instruction, equality of participants in the educational process, internationalization of educational systems, individualization of education and globalization of the learning environment. The usefulness of the conventional educational system is called into question by the quick creation of such courses, and it is currently being challenged by enormous online courses that draw millions of participants and donations. Online education proponents are optimistic that the traditional educational system will undergo a significant transformation soon since students will be able to fully "enrich" their knowledge of online courses that are available on the Internet.

Conclusion

Consequently, it can be claimed that online education is rapidly expanding worldwide. Significant pedagogical potential linked to the intensification and digitization of the educational process can be found in online courses. We believe that in the near future, online courses will become a solid foundation for lifelong learning. The use of several technologies, including video content, gaming programs, and aspects of virtual or augmented reality, is one of the primary themes in the development of online education. However, the emphasis is still on those who choose not to squander time studying about everything. Training's primary purpose is to solidify the required abilities and offer concise answers to queries. A person's motivation and willingness to consistently commit time to self-education will continue to be the deciding factors.

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A STUDY ON SOCIO ECONOMIC IMPACT OF KIDNEY PATIENTS WITH REFERENCE TO CHENNAI CITY

Dr. Naorem Naocha Chanu*

ABSTRACT

Dialysis and transplantation are a lifesaving method for kidney disease. In spite of this important fact, dialysis is not available in many parts of the State. The economic costs to society arise as a result of very less allocation of funds by the government for kidney disease. The lack of proper concern causes affected people in these areas leading early death. Patients and their family invest a huge amount of money in medical expenses so there is an out flux of income for the medical expenses, which affect economic condition of the family. On supply side the private hospitals are equipped to handle the patients suffering from kidney disease due to less investment by government. On demand side, kidney patients are growing in large number to acquire treatment. In economic terms, the cost related to kidney disease is broad. Costs related to kidney disease medical treatments, the earnings lost to individuals, loss of jobs and so on. Other less well-known costs include the opportunity costs to individuals with kidney disease and their families who sacrifice other activities because they have to devote money, time cater to the demand of relative living with kidney disease.

KEYWORDS: *Kidney Disease, Demand and Supply Side, Transplantation.*

Introduction

It is now well recognized that the prevalence of CKD chronic kidney disease is increasing all over the world. A disproportionate burden of the global increase in prevalence of CKD is being increasingly borne by the economically backward countries as a result of the increase in the prevalence of the CKD risk factors, namely, diabetes, hypertension, obesity, and increasing life-expectancy. The prevalence of chronic kidney disease (CKD) in India between 2018 and 2023 was 16.38%. The prevalence of CKD in India has been increasing, and is considered to be epidemic.

Kidney disease is a hushed killer. Almost 12 per cent of India's population is expected to be suffering from some form of undetected kidney disease, which can cause a total kidney failure that needs dialysis and transplantation. Only 9 per cent of the patients are able to obtain kidney transplant and pay for the treatment. As many people belong to the weaker socio-economic status, it is difficult to undergo dialysis which costs around Rs. 1,500 - Rs 2,200 per session in private centres. It has to be done thrice every week which cost around Rs 25,000 - Rs 30,000 per month. Transplantation costs nearly Rs 5-10 lakh in private hospitals and must wait for the donor. The rising incidence of diabetes, hepatitis and hypertension in India is likely to enlarge the figure of kidney failure rate.

In economic terms, the cost related to kidney disease is broad. Costs related to kidney disease medical treatments, the earnings lost to individuals, loss of jobs and so on. Other less well-known costs include the opportunity costs to individuals with kidney disease and their families who sacrifice other activities because they have to devote money, time cater to the demand of relative living with kidney disease. The agony creates stress to the affected family members.

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Objectives of the Study

- To study the socio-economic conditions of the kidney patients in Tamil Nadu.
- To identify the awareness level and knowledge of organ donation and transplantation among the kidney patients in the study area.

Methodology

In the present research both primary and secondary data were used to arrive at the results. Secondary data was collected from the year 1980 to 2015 from various Reports, Magazines, Journals, Articles, Internet Sources, Newspapers and from leading Public Libraries and University Libraries

The present study has employed the interview method of data collection. It enables the researcher to know and study even those issues that are not open to observation. It also studies theoretical and intangible psychological, emotional state of the family. Again, the personal involvement of the researcher in these methods aids in good reporting.

Hypotheses of the Study

There is no significant difference among mean ranks towards problems of kidney patients.

Table 1: Cost of Early Kidney Screening and Detection

Kidney Check up	Tests	Amount
Basic kidney check up	Blood sugar, Blood Urea, Serum Creatinine Urine Analysis, USG KUB	Rs 1270
Advanced kidney check up	Basic Kidney Check Up, Haemogram, Lipid profile, LFT+Serum Electrolytes, Urine Protein Creatinine Ratio, Urine Microalbumin, Serum Calcium and Phosphorus, Uric Acid	Rs 3700

Source: Leading Hospitals of Chennai city

Table 1 shows the cost of early screening and detection of kidney checkup in leading hospitals of Chennai city. It shows that basic kidney checkup costs Rs 1270 and for advanced kidney checkup it cost Rs 3700. Screening and detection test is a simple, cost effective and proven tool that identifies and educates those with early kidney disease, and health professionals are able to provide corrective treatment before risk factors develop into chronic kidney disease.

Table 2: Cost of Kidney Transplantation Rates

Serial Nos	Particulars	Cost (Rs)
1	Pre transplant cost on dialysis	Rs 15000- Rs 40000
2	Transplant cost in Private hospital	Rs 5 lakhs- 10 lakhs
3	Transplant cost in public hospital	Rs 1 – 2 lakhs
4	Cost of medication post-transplant for first three to six months	Rs 15000
5	Lifelong Cost on immunoglobulins (Antibiodies that fight foreign bodies like viruses, bacteria)	Rs 6000- Rs 8000

Source: Leading Hospitals of Chennai city

The above table 2 shows the cost of kidney transplantation. It is found that in pre transplant cost of dialysis the patients have to spend nearly Rs 15000 to Rs 40000 per month, Transplant cost in Private hospital Rs 5 lakhs to 10 lakhs and in public hospital it costs around Rs 1-2 lakh. For medication it costs nearly Rs 30000 per month.

Table 3: Benefit of Transplant Versus Staying on Waiting List

Age	Without Transplant	With transplant	Difference
0-19	26y	39y	13y
20-39	14y	31y	17y
40-59	11y	22y	11y
60-74	6y	10y	4y

Source : Wolfe RA et al, NEJ 1999; 341:1725

The above table 3 shows the benefit of transplant according to the age group. It is found that if the patients are doing transplant, the number of years will increase to lead a normal life and it differs according to the age group. It also shows that as young as the patients will do transplant the survival rate and years of living are more.

Economic Analysis on Kidney Patients- Direct and Indirect Economic Impact

The hidden disease that is kidney disease has been rapidly increasing in our country where the cost of treatment is very high where patients cannot afford and there is no solution for this disease as the government policy and schemes is not there to help those large population of the patients and getting of organs is also very low as to do transplantation. It directly and indirectly impact the socio economic problems to the patients as they have to spend all the amount to cure the disease which took longer period and there it is non curable but which can be replaced by transplantation and it cost lakh of rupees which is not affordable to the patients and also getting of donors is also hard. For the analysis of the present study the primary data collected are properly coded and organized. The statistical software SPSS has been used to find out the accurate result of the study.

Table 4: Table Showing Distribution on Direct and Indirect Cost by Kidney Patients

Particulars	No investment	Below 5000	5001-10,000	10,001-15,000	Above 15,001	Total
Hospital fees	440 (80)	18 (3.2)	36 (6.5)	3 (0.5)	53 (10)	550
Doctor fees	-	528 (96)	17 (3.1)	-	5 (1)	550
Medicines	-	406 (74)	95 (17.2)	35 (6.4)	14 (2.5)	550
Laboratory tests	-	516 (94)	23 (4.2)	4 (1)	7 (1.3)	550
Dialysis (1day cost)/ Transplantation/ Surgery	57 (10.4)	341 (62)	3 (0.5)	2 (0.4)	147 (26.7)	550
Dependent Care	433 (79)	102 (18.5)	15 (3)	-	-	550
Travelling	-	543 (99)	7 (1.3)	-	-	550
Other (Non Medical Cost)	25 (4.5)	525 (95.4)	-	-	-	550

Source: Primary Data

It is observed from the table 4, that 80 per cent of the kidney patients have not invested any income for hospital fees, 3.2 per cent of the patients spen below Rs 5000, 6.5 per cent of the patients spend Rs 5001 to Rs 10,000 for hospital fees, 0.5 per cent of the patients spend Rs 10,001 to Rs 15,000 for hospital fees and 10 per cent of the patients spend above Rs 15,001for hospital fees in the particular one month time. 96 per cent of the kidney patients have spend below Rs 5000 for doctor fees, 3.1 per cent of patients spend Rs 5001 to Rs 10,000 for doctor fees and 1 per cent of the kidney patients have spent above Rs 15,001 for doctor fees. 74 per cent of the kidney patients are spending below Rs 5000 for medicines, 17.2 per cent of the patients spend Rs 5000 to Rs 10,000 for medicines, 6.4 per cent of the patients spend Rs 10,001 to Rs 15000 for medicines and 2.5 per cent of the patients are spending above Rs 15,000 per month. 94 per cent of the kidney patients spend below Rs 5000 for laboratory tests, 4.2 per cent of the patients spend Rs 5001 to 10,000 for laboratory tests, 1 per cent of the patients spend Rs 10001 to Rs 15,000 for laboratory tests and 1.3 per cent of the patients spend above Rs 15,001 for laboratory tests. 10.4 per cent of the kidney patients have not spent any money because of government schemes and funds that are free of cost, 62 per cent of the patients spend below Rs 5000, 0.5 per cent of the patients spend Rs 5001 to Rs 10,000, 0.4 per cent of the patients spend Rs 10,001 to Rs 15,000 and 27.6 per cent of the patients spend above Rs 15,001 for dialysis/ transplantation/surgery. 79 per cent of the kidney patients do not invest money for dependent care, 18.5 per cent of the patients spend below Rs 5000 for dependent care and 3 per cent of the patients spend Rs 5001 to Rs 10,000 for dependent care. 99 per cent of the kidney patients spend below Rs 5000 for travelling and 1.3 per cent of the kidney patients spend Rs 5001 to Rs 10,000. 4.5 per cent of the kidney patients have not invested any amount for non-medical cost like taking of food from the hospitals, 95.4 per cent of the patients have spent Rs 5000 below for other non-medical cost. Majority of the patients are spending their amount in direct cost like doctor fees, medicines. Laboratory tests, dialysis and travelling. The burden is more to the kidney patients they have to spend nearly Rs 20,000 to Rs 30,000 for the treatment which it is not easy for the low income and middle-income group people.

- **Null Hypothesis:** There is no significant difference among mean ranks towards problems of kidney patients.

Table 5: Friedman Test for Significant Difference among Mean Ranks towards Problems of Kidney Patients

Factors of Problems of Kidney Patients	Mean Rank	Chi Square Value	P value
Financial Constraints	3.74	480.436	<0.001**
Don't think a cured possible	3.43		
Not able to bear the pain	2.85		
Psychological problems	2.90		
Family problems	2.08		

Source: Primary Data
Note: **denotes significant at 1% level

Since P value is less than 0.01, the null hypothesis is rejected at 1 per cent level of significance among mean towards factors of problems of kidney patients. Hence there is significant difference among mean ranks towards factors of problems of kidney patients. Based on mean rank financial constraints (3.74) is the major problem of kidney patients, is followed by the thought of the impossibility of curing the disease (3.43), psychological problems (2.90), inability to bear the pain (2.85) and family problems (2.08). As financial constraints are the main problems that people are face, many of the patients belonging to low- and middle-income group where hardly they don't have the money to invest for this high cost of treatment where every week they have to spend nearly Rs 7000-8000/-which becomes a burden to their family.

Conclusion

Within a short period of time, Tamil Nadu has achieved an incredible success in organ donation rate and this successful implementation is possible only through strong NGOs organization, public-private partnership, and optimistic strong public attitudes towards organ donation. It not only serves as a role model in India for other States but also to many countries where donation rate is abysmal. To conclude with, the growing demands for organs in every State, the models which were made on Tamil Nadu should be followed. The information would be helpful in the future for kidney patients for targeted programs and campaigns. There is a dire need to take up certain steps to improve the number of organ donation and transplant centres all over our country to fight against the deadliest kidney disease and also the solution for reducing economic burden of the society.

In summary, the problem of kidney disease is most likely taken too lightly and under-recognized in India. The burden of kidney disease is increasing in India rapidly. India lacks trained manpower, facilities and economic expertise to ensure universal availability. There is an urgent need to initiate a wide-ranging and efficient early detection and prevention program to reduce the burden of kidney disease in India. Awareness towards the kidney patients regarding organ donation and transplantation should give to make them protect from the deadliest disease before it comes to the last stage.

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INDIA'S CASHLESS REVOLUTION: OPPORTUNITIES AND CHALLENGES WITH SPECIAL REFERENCE TO RAJASTHAN

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ABSTRACT

India is indeed in the middle of a changeover from being a cash-centric economy to cashless. A digital payment system has promised it better financial inclusion, economic growth, and increased transparency. India's cashless revolution is addressed in this paper, focusing more on Rajasthan-a very large state of India-because of the geographical diversity, which has thrown socio-economic challenges at its residents. While the government's initiatives like Digital India, adoption of UPI, and mobile wallets have boosted digital payments significantly, the case of Rajasthan is different in embracing a cashless economy. It faces low internet penetration in rural areas, limited digital literacy, and dependence on cash-based transactions. The paper gauges the level of digital payment in Rajasthan state, where progress is observed along the urban locations such as Jaipur and Udaipur as compared to low adoption in the rural areas. It analyzes both the opportunities - greater financial access, easier entry into government-sponsored welfare schemes, and transparency into transactions - against the barriers associated with infrastructure requirements, security factors, and attitudinal inhibitions towards embracing change. The paper therefore concludes that in order to surmount these problems, a multifaceted approach would be required to enhance digital literacy, internet connectivity, cashless transactions, and cybersecurity. These steps can unlock the true potential of digital payments in Rajasthan and contribute toward more holistic economic and social development. This research will, in the end, provide insights and recommendations for policymakers, businesses, and other stakeholders to accelerate Rajasthan's transition toward a truly cashless economy.

***KEYWORDS**: Cashless Revolution, Financial Inclusion, Economic Growth, Welfare Schemes, Digital Literacy.*

Introduction

India has set its sights on a cashless economy, where digital payments replace traditional cash transactions, improving efficiency, transparency, and financial inclusion. This vision aligns with the government's broader goals of fostering economic growth, reducing corruption, and enhancing the ease of doing business. Such initiatives are in the form of Digital India campaign, creation of the National Payments Corporation of India, the thrust to mobile wallet, and promoting UPI among other. With all such efforts, it increased the overall transactions made by electronic modes as against the hard cash that previously formed a chunk of transactions done.

While the urban regions have seen tremendous progress, digital payment systems have been unevenly adopted in rural and semi-urban regions. Rajasthan is a large state with a diversified population and unique challenges and opportunities in this transition. The state, known for its vast rural areas and

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relatively low levels of internet penetration, faces significant barriers to implementing cashless transactions universally. Despite all these challenges, Rajasthan also presents a significant potential for the successful adoption of digital payments, especially with its burgeoning urban centers, increasing smartphone penetration, and the state's economy being largely driven by agriculture and small businesses.

This paper looks to analyze the current state of cashless adoption in Rajasthan, focusing on the opportunities it presents, such as increased financial inclusion and better access to government services. In addition, the paper identifies the barriers that prevent the state from transition, including limited digital literacy, poor internet infrastructure in rural areas, and security concerns. With the understanding of the unique context of Rajasthan, the paper offers recommendations to overcome the challenges, so the state can fully enjoy the benefits of a cashless economy. Ultimately, the findings of this paper offer insights into how Rajasthan can accelerate its digital payments journey, contributing to India's larger goal of a cashless society.

India’s Cashless Revolution: An Overview

India's push toward a cashless economy gained much momentum after the government's demonetization move in November 2016. The sudden withdrawal of high-denomination currency notes was aimed at eradicating problems such as black money, counterfeit currency, and corruption while nudging citizens to shift toward digital forms of payment. The policy led to an initial surge in the adoption of digital payments as citizens and businesses resorted to mobile wallets, electronic banking, and other digital payment systems to continue their transactions.

It can be said that after demonetization, the government and various regulatory bodies gave their attention toward building an eco-friendly environment. The National Payments Corporation of India (NPCI) was successful in building these key payment systems such as the Unified Payments Interface (UPI), Bharat QR Code, and Aadhaar-enabled Payment Systems (AePS). With this, it is realized that simplicity, interoperability, and low-cost nature of UPI also made it a game-changer, which widely proliferated in both urban and rural regions.

But digital payment platforms also have included mobile wallet systems like Paytm, PhonePe, and Google Pay, amongst others, providing ease of seamless transfer, bill payments, and consumptions. Aadhaar's biometric identification with direct linkage to banks has further accelerated digital payments by ensuring security and being inclusive to the financial services market.

Digital payments are now regarded as a critical tool for advancing financial inclusion, as they provide access to banking services for people in remote or underserved areas. Additionally, digital transactions improve government transparency, reduce leakages in subsidy distribution, and streamline the process of collecting taxes. For businesses, digital payments have simplified transactions, minimized cash-handling costs, and expanded their market reach through online channels.

As of 2020, digital payments in India were on the verge of explosive growth. The Reserve Bank of India (RBI) projected that the country's digital payment market size would reach USD 1 trillion by 2023. Growth is mainly driven by rapid technological advancement, increasing internet penetration, and the strong backing of government initiatives such as Digital India and Startup India.

Nevertheless, these advancements do not eliminate all the challenges in the rural sector, where infrastructure and digital literacy gaps are prevalent. Still, India's move towards a cashless society remains positive, and more people, businesses, and government services adopt digital transactions. The shift towards a cashless economy is not just about technology; it is about creating an ecosystem where every citizen, regardless of geography, has access to the benefits of digital financial inclusion.

Digital Payments in Rajasthan: Current Status

Rajasthan, India's largest state, has seen a good deal of strides in terms of digital payment adoption, with urban locations showing the most promising results. The state is characterized by both highly populous cities and much larger rural spaces, which makes cashless transitions an exceptional challenge. Although Rajasthan has made great strides in some areas, its overall penetration of digital payment systems remains quite uneven, with rural areas even more lagging behind.

Digital payment systems such as UPI, mobile wallets, and online banking have seen a great adoption in urban centers like Jaipur, Udaipur, and Jodhpur. These platforms are convenient, and with the increasing penetration of smartphones and internet access, cashless transactions have been adopted in these regions. For instance, mobile wallet usage in cities has increased manifold, and digital transactions have grown exponentially. A report by the Ministry of Electronics and Information Technology (MeitY) mentions that digital payment transactions in Rajasthan increased significantly between 2018 and 2020, rising from INR 40 billion to INR 150 billion. This is an important accomplishment, but a relatively small portion of the total volume of transactions in the state, indicating a significant reliance on cash in most parts of the state.

In rural Rajasthan, digital payments have been adopted slowly. Poor internet connectivity, low levels of digital literacy, and lack of access to smartphones or computers are some of the significant barriers in many rural areas. For example, most small farmers and artisans, who depend on traditional cash transactions, have not fully embraced digital payments due to either a lack of trust in digital systems or a lack of adequate infrastructure. Additionally, the transition to cashless systems is also delayed by local businesses and traders who are already accustomed to dealing in cash.

Despite all these, digital payments adoption in the state has been undertaken under various initiatives. For example, the government launched the Digital India campaign while simultaneously promoting UPI and Bharat QR to reach rural destinations to promote greater financial inclusion in terms of digital money. The Rajasthan government has further entered partnerships with private tech companies to enhance internet accessibility and, thus, undertake digital literacy to educate rural folk of the benefits and usage of digital money.

Although Rajasthan has made solid progress, the achievement still lies in the variation between urban and rural areas in terms of digitization through payment means. It is possible that there are still weaknesses in the state's infrastructure, lower digital literacy, or small business aversion to using digital modes that must be overcome to accelerate a cashless economy. In particular, government intervention and private sector players will play a key role in overcoming the barriers to benefitting from digital payments in all corners of Rajasthan.

Opportunities Offered by Cashless Transactions in Rajasthan

Although Rajasthan is still a long way from becoming a cashless economy, the state offers a huge potential for reaping the benefits of the digital payment revolution. A number of important opportunities are offered by cashless transactions that could transform the state's economy and improve the quality of life of its people.

- **Financial Inclusion**

One of the most critical opportunities of cashless transactions in Rajasthan is financial inclusion. While a big proportion of Rajasthan's rural population is not banked or is grossly underbanked, "access to formal financial services remains limited. Digital payments can allow those living in remote areas access to deposits, loans, insurance, and credit without needing a visit to a brick-and-mortar banking branch". Digital payments can fill this gap by linking people to financial institutions through mobile phones, allowing them to be part of the formal economy. Using the high penetration of mobile phones and government initiatives such as Aadhaar, financial inclusion can be expedited so that even the most marginalized groups in Rajasthan are brought into the financial ecosystem.

- **SMEs**

The state of Rajasthan has a strong network of small and medium enterprises that are at the heart of its economy. The businesses in these sectors can be highly benefited through digital payments, which will enable easier ways of transacting money, improving tracking on transactions, and finally, better management of their finances. Cashless systems can expand the customer base of SMEs beyond their local geographical location, allowing them to tap into national and international markets. Besides, digital transactions have streamlined inventory management and accounting processes and reduced risks associated with cash handling. Through mobile wallets, UPI, and other digital payment platforms, SMEs are able to target a more technologically savvy consumer base, where they can have the opportunity to flourish in the digital economy.

- **Government Schemes and Subsidies**

The promotion of cashless transactions can significantly boost the efficiency and transparency of the government schemes and welfare programs being implemented in the state of Rajasthan. Cashless payment systems would allow for direct transfers of benefits through mechanisms like Direct Benefit Transfers (DBT), whereby subsidies for farmers, pensioners, students, and other such vulnerable groups will reach the appropriate recipients on time. Digital payments eliminate intermediaries, reduce leakage, and curb corruption, ensuring that funds are efficiently distributed to the beneficiaries. Digital records created through these transactions improve accountability and allow for better monitoring and assessment of welfare programs.

- **Improved Tax Compliance and Transparency**

A cashless economy fosters greater financial transparency by making all transactions traceable. With more people and businesses using digital payment methods, it is now impossible to cover up financial transactions or evade tax. This creates a culture that encourages higher compliance with taxes and accountability. All the transaction records will be captured in real time, making the state government sensitive to any suspicious transactions and enable them to crack down on evaders. Lesser usage of cash would further reduce the possible prospects of black money and income underreporting. As a result, the state would benefit from increased tax revenues that can be reinvested in infrastructural, social service, and other public goods development.

This change to a cashless economy has opened vast avenues for the economic growth, development of better governance, and making the financial system more inclusive. The state, by harnessing these opportunities, can be in a position to enhance competitiveness, increase efficiency of public and private transactions, and create an equal society. Still, to reach these objectives, investment will continue to be necessary in the sectors of infrastructure, education, and support to local businesses and communities.

Barriers to Achieving a Cashless Economy in Rajasthan

Though Rajasthan promises a lot for cashless economy, there are a number of challenges that do not allow it to be completely implemented. From the lack of digital literacy to security issues, there are various factors that need to be overcome in order to make cashless payment systems work well in the state.

- **Digital Literacy**

The major constraint toward the cashless payments transition in Rajasthan is the low level of digital literacy among some people, mainly rural and remote areas. To many people, especially the elderly and rural residents, mobile phones, mobile application, and web-based electronic payment are still an alien concept. A significant number of people neither know nor are skilled in such applications, resulting in many people being wary of the digital payments due to their traditional face-to-face systems of payment methods. Efforts to promote digital literacy should be undertaken so that people become confident of cashless systems and are encouraged to use them.

Government and NGOs should invest in training programs, workshops, and awareness campaigns for the benefit of people to become digitally literate.

- **Internet Connectivity**

is an enormous state geographically with large desert areas and hilly areas, and this makes internet connectivity a challenge everywhere. In rural areas, access to high-speed internet is poor or unavailable. Poor network coverage leads to disruptions in digital transactions resulting in various cashless payments relating to unavailability. Additionally, the lack of robust connectivity infrastructure compels a user not to opt for digital platforms since transactions may fail, delay, or lead to security issues. To address this challenge, the state government and private telecom companies need to prioritize improving network infrastructure, particularly in underserved areas, to ensure seamless and uninterrupted digital payment services.

- **Cash Dependence in Rural Areas**

Cash has traditionally been the primary medium of exchange in rural Rajasthan, especially in informal economies where transactions are often small and frequent. In such areas, people are more comfortable using cash for their daily transactions and may lack the understanding or trust to make the transition to digital payment systems. Factors like limited access to banking services, unawareness of digital payment platforms, and preference for face-to-face transactions all contribute to the persistence of cash-based systems. Secondly, small businesses and vendors, which are mostly dependent on cash for their daily operations, may not find any benefits in using digital payments. Breaking this deep-rooted culture of cash will need education and awareness campaigns but incentives to encourage cashless transactions in rural areas.

- **Security Issues**

Security issues associated with digital payment systems are still a major impediment to cashless transactions in Rajasthan. The risk of cybersecurity threats, online fraud, and potential identity theft frightens the user, especially a person who does not understand much about technology. They tend to avoid divulging financial information due to fears of hacking, phishing, or other types of unauthorized transactions. These concerns are even more amplified in rural areas, where there may be less understanding of how digital payment platforms are secured and how users can protect their personal information. Strengthening cybersecurity measures and providing clear guidance on secure transaction practices will be essential in addressing these security concerns. Public campaigns that build trust about the safety of digital transactions, as well as fraud detection systems, can reduce these risks.

In conclusion, while Rajasthan has the potential to leverage the benefits of a cashless economy, overcoming the challenges of digital literacy, internet connectivity, cash dependence, and security concerns is essential. A comprehensive approach that includes infrastructure improvements, educational initiatives, government support, and private sector involvement will be necessary to overcome these barriers and enable a successful transition to a cashless society in the state.

Recommendations for Overcoming Challenges

To overcome the constraints that are posing a barrier in the adoption of cashless transactions in Rajasthan, and to be able to unlock the full potential of a cashless economy, several strategic recommendations are needed. These recommendations include addressing the most critical issues pertaining to digital literacy, internet connectivity, cybersecurity, and cash dependency while creating a more inclusive environment for digital payments.

- **Digital Literacy**

The lack of digital literacy is a significant barrier to cashless adoption, especially in Rajasthan. In such areas, its development is crucial in collaboration with the private sector. They should place significant emphasis on conducting extensive digital literacy campaigns that focus on educating individuals about the benefits, functionality, and safety of digital payment systems. The government should conduct these campaigns in local languages to reach all groups of population. Training programs must also be held at community centers, panchayats, and schools. Target groups for the programs include seniors, farmers, and small shop owners. In the practical trainings with a focus on using the smartphones, mobile wallets, and UPI, these trainings can arm the masses with confidence and security to use the digital payment system.

- **Increasing Internet Penetration**

One of the major reasons why digital payments are not as popular in Rajasthan is the lack of reliable internet connectivity in remote and rural areas. To improve this, internet infrastructure needs to be developed in underprivileged regions. Public-private partnerships should be encouraged to invest in the expansion of affordable internet services to rural and semi-urban areas. Moreover, the state government must collaborate with the telecom service providers to extend better network connectivity with no cuts or interruptions at all, mainly in rural and desert areas, as the connection remains very thin and poor there. More and more people would access digital payment systems with an improved internet infrastructure for cashless economies.

- **Cybersecurity**

One of the major concerns of users in Rajasthan is the security of digital payment systems, especially in rural areas where digital literacy may be low. Strengthening cybersecurity measures will help the state government build trust in digital transactions. This can be done by educating users on safe digital payment practices, such as protecting personal information, using strong passwords, and recognizing phishing attempts. Implementing strong encryption technology and ensuring that all digital channels adhere to industry-specific security standards will ensure the protection of sensitive financial information. Regulatory control over digital payment systems will facilitate consumer safety and due accountability on the part of the financial institutions in case of security breaches. Public awareness programs concerning the safety features of digital payment schemes can also be used to dispel the phobia of cybercrime and fraud.

- **Incentivizing Digital Transactions**

The Rajasthan government can offer incentives for businesses and individuals who opt for cashless transactions to encourage them to adopt digital payment systems. Incentives can be offered in the form of cashback offers, discounts, or tax rebates to those using digital platforms for payments. In addition, digital payments would be integrated into the existing schemes and services offered by the government, such as agricultural subsidies, pension disbursement, and welfare programs, and this would offer a strong incentive for the rural population to go for digital transactions. The government could also engage with local businesses and retailers in offering discounts or promotions to customers who pay digitally, thereby building a culture of cashless transactions. By providing financial incentives and making digital payments more attractive, the government can drive widespread adoption across both urban and rural areas.

In conclusion, the successful implementation of a cashless economy in Rajasthan requires a multi-pronged approach that focuses on improving digital literacy, expanding internet infrastructure, strengthening cybersecurity, and incentivizing digital transactions. These recommendations will address the barriers to adoption that are currently facing adoption and will be able to create an environment in which a digital economy can flourish, bringing in benefits to the individual as well as businesses in the state. With government-private sector and local community cooperation, Rajasthan will overcome its challenges and realize the full potential of the cashless revolution.

Conclusion

India’s cashless revolution holds immense potential for fostering economic growth, enhancing financial inclusion, and promoting transparency. While Rajasthan faces challenges related to digital literacy, internet connectivity, and cash dependence, these hurdles are not insurmountable. With concerted efforts from the government, financial institutions, and the private sector, Rajasthan can overcome these barriers and unlock the opportunities presented by a cashless economy. A collaborative approach that focuses on education, infrastructure development, and security will be the way forward to realize the vision of a completely cashless and inclusive economy in the state.

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IMPROVING ACCESS AND EFFECTIVENESS IN MICROFINANCE THROUGH DIGITAL TECHNOLOGY

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ABSTRACT

The emergence of digital technology has transformed the microfinance industry, giving excluded and underprivileged groups better access to financial services. This study examines how digital tools and platforms can increase the efficacy and reach of microfinance institutions (MFIs). MFIs are overcoming the conventional obstacles of geographic restrictions, high operating expenses, and a lack of financial literacy among their clientele by utilizing new technologies including digital wallets, mobile banking, and artificial intelligence. This study looks at how digital transformation may promote economic empowerment, increase financial inclusion, and lessen poverty in neglected areas. The incorporation of mobile-based platforms for cashless repayments, real-time monitoring, and smooth loan disbursements are important areas of attention that guarantee increased efficiency and transparency. The paper also emphasizes how machine learning and data analytics may improve credit risk assessments and enable more precise beneficiary targeting. The difficulties MFIs encounter while using digital technology are also covered in the article, including user resistance to change, cybersecurity issues, and deficiencies in technological infrastructure. The study offers practical advice on how to apply digital technologies in microfinance by examining successful case studies from developing nations. The results highlight how digital transformation not only improves operational efficiency but also opens the door to the larger objectives of sustainable development and financial inclusion. The report ends with strategic frameworks and policy recommendations to help MFIs maximize the advantages of digitization while resolving related issues.

KEYWORDS*: Digital Transformation, Microfinance Institutions (MFIs), Financial Inclusion, Economic Empowerment, Technology Integration.*

Introduction

Review of Literature

The microfinance sector has historically been viewed as a key instrument for promoting financial inclusion and economic empowerment. According to Yunus (2003), the founder of the microfinance movement, small-scale loans to marginalized populations can foster entrepreneurship and economic growth. However, challenges such as high operational costs and geographical barriers have often limited the reach and efficiency of MFIs.

Digital technology has emerged as a transformative force in the financial sector. Kumar and Raghavendra (2018) highlighted that mobile banking platforms and digital wallets have significantly enhanced the accessibility of financial services in rural and semi-urban areas. Similarly, a study by Blechman and Rao (2020) emphasized that real-time data collection and analytics can enhance operational efficiency and reduce non-performing assets in microfinance portfolios.

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Research by Marulanda et al. (2019) demonstrated the importance of integrating artificial intelligence and machine learning for improving credit risk assessment. The findings suggest that predictive analytics can reduce loan defaults while expanding credit access to unbanked populations. Nonetheless, user resistance to digital adoption, cybersecurity challenges, and limited technological infrastructure have been identified as persistent issues (Patel & Sharma, 2021).

The advent of blockchain technology has also received attention in the literature. A report by McKinsey (2020) indicated that blockchain can enhance the transparency and security of microfinance transactions, thereby boosting stakeholder trust. Furthermore, studies by Smith et al. (2021) revealed the role of e-learning platforms in bridging the digital literacy gap among microfinance clients, enabling them to better utilize digital tools.

In summary, the literature underscores the need for a holistic approach to integrating digital technologies into microfinance operations, emphasizing innovation, user training, and robust security frameworks.

Objectives of the Study

- To analyze the impact of digital technologies on the operational efficiency of MFIs.
- To examine how digital platforms enhance financial inclusion and economic empowerment in underserved communities.
- To identify the challenges faced by MFIs in adopting digital technologies.
- To evaluate successful case studies of digital transformation in microfinance from developing nations.
- To provide strategic recommendations for leveraging digital tools in the microfinance sector.

Research Methodology

Research Design

This study employs a mixed-method approach, combining qualitative and quantitative research techniques. The primary data is collected through structured surveys and interviews with key stakeholders in the microfinance ecosystem, including MFI managers, borrowers, and technology providers.

Data Collection

- **Primary Data:** Surveys were conducted with 200 borrowers and 50 MFI staff members across five developing countries. In-depth interviews were held with 10 industry experts.
- **Secondary Data:** A review of 50 peer-reviewed journal articles, industry reports, and government publications provided a comprehensive understanding of the subject.

Sampling Technique

Purposive sampling was used to select respondents from regions with high microfinance activity, ensuring representation from both rural and urban areas.

Data Analysis

Quantitative data was analyzed using statistical tools such as SPSS, while qualitative insights were coded thematically to identify recurring patterns and trends.

Data Analysis and Interpretation

- **Analysis of the Impact of Digital Technologies**

Parameter	Before Digital Adoption	After Digital Adoption	% Improvement
Loan Processing Time	7-10 days	1-2 days	80% faster
Customer Onboarding Time	5-7 days	2 days	60% reduction
Operational Cost Reduction	High	Lower due to automation	30-40% savings
Loan Repayment Rate	85%	93%	8% increase
Number of Customers Served Per MFI	5,000	15,000	3x increase

The above findings indicate that digital technologies have significantly improved operational efficiency in MFIs by reducing processing times, increasing repayment rates, and allowing MFIs to scale their outreach.

- **Improvement in Financial Inclusion**

Parameter	Before Digital Adoption	After Digital Adoption	% Improvement
% of Borrowers with Access to Loans	40%	75%	87.5% increase
Average Loan Size (USD)	$200	$500	150% growth
Women Borrowers' Participation	30%	65%	117% increase
Business Growth Rate of Borrowers	10%	25%	150% increase
Loan Repayment Rate	85%	93%	8% improvement

The above results show that digital platforms significantly increase financial accessibility, improve loan sizes, and enhance repayment rates, benefiting underserved communities.

Challenges in Digital Adoption

- **High Implementation Costs**: MFIs operate with limited financial resources, making it difficult to invest in digital technologies. Expenses include acquiring technology, training staff, and maintaining cybersecurity infrastructure.
- **Lack of Digital Literacy Among Borrowers**: Many microfinance clients, especially in rural areas, have limited exposure to digital financial services. Low awareness and understanding of mobile banking and online transactions hinder adoption.
- **Cybersecurity Risks and Data Privacy Concerns**: Increased vulnerability to fraud, hacking, and identity theft as MFIs transition to digital platforms. Lack of robust cybersecurity measures can lead to breaches and loss of customer trust.
- **Inadequate Digital Infrastructure and Internet Connectivity**: Rural areas often lack stable internet access and reliable electricity. Limited availability of digital payment facilities restricts financial inclusion.
- **Resistance to Change Among MFI Staff and Borrowers**: Employees may be reluctant to adopt digital tools due to lack of technical skills. Borrowers often prefer traditional, cash-based financial transactions over digital solutions.
- **Regulatory and Compliance Issues**: Digital financial services are subject to strict regulations, including KYC and AML norms. MFIs must navigate complex legal requirements to offer digital lending and mobile banking.

To Evaluate Successful Case Studies of Digital Transformation in Microfinance from Developing Nations

Digital transformation in microfinance has revolutionized financial inclusion by enhancing operational efficiency, expanding outreach, and providing seamless financial services to underserved communities. Several developing nations have successfully implemented digital solutions in microfinance, demonstrating the potential of technology to overcome traditional barriers. This section evaluates key case studies highlighting the impact of digital adoption in microfinance institutions (MFIs).

- **M-Pesa and M-Shwari (Kenya)**

Kenya's M-Pesa, launched by Safaricom in 2007, is one of the most well-known examples of mobile money transforming microfinance. M-Pesa enables users to deposit, withdraw, transfer money, and pay for goods and services using mobile phones, reducing dependency on cash transactions. M-Shwari, a collaboration between Safaricom and the Commercial Bank of Africa, builds on M-Pesa by offering digital loans and savings accounts without requiring traditional banking infrastructure.

- **Bharat Financial Inclusion Ltd. (India)**

Bharat Financial Inclusion Ltd. (formerly SKS Microfinance) has successfully integrated AI-driven credit scoring and digital loan processing to streamline lending operations. The institution utilizes alternative credit assessment techniques to evaluate borrower risk, reducing dependency on conventional documentation.

- **Bank Rakyat Indonesia (BRI) - Agent Banking Model**

Bank Rakyat Indonesia (BRI) has pioneered the agent banking model in Indonesia, allowing local shop owners and small business operators to act as banking agents. Through digital banking solutions, these agents offer financial services such as deposits, withdrawals, loan applications, and bill payments.

- **Equity Bank's EazzyLoan (Uganda & Tanzania)**

Equity Bank introduced EazzyLoan, an AI-powered instant digital loan service, in Uganda and Tanzania to address the challenges of limited access to formal credit. The platform uses big data analytics to evaluate borrower behavior and provide instant microloans without requiring collateral.

- **FINCA Impact Finance – Blockchain for Security**

FINCA Impact Finance operates in multiple developing countries across Africa and Latin America, leveraging blockchain technology to enhance transaction security and transparency in microfinance. The use of distributed ledger technology (DLT) has significantly reduced fraud and operational inefficiencies.

To provide strategic recommendations for leveraging digital tools in the microfinance sector.

- **Adoption of AI-Driven Credit Scoring**

Improve loan approval efficiency and reduce default risks. Utilize AI and machine learning to analyze alternative credit data (e.g., mobile transactions, social media activity, and purchase behavior). Implement automated credit risk assessment to provide instant loan approvals, reducing manual processing time. Partner with fintech companies to integrate AI-based credit models.

- **Expansion of Mobile Money and Digital Payments**

Enhance financial access in rural and remote areas. Strengthen partnerships with mobile network operators to offer seamless digital payments. Promote the use of mobile wallets and USSD-based banking for customers with basic phones. Integrate microfinance services into popular digital payment platforms (e.g., M-Pesa, Paytm, and bKash).

- **Strengthening Cybersecurity and Fraud Prevention**

Ensure safe and secure digital financial transactions. Invest in advanced encryption, biometric authentication, and AI-driven fraud detection systems. Implement multi-factor authentication (MFA) for mobile banking services. Educate customers on fraud awareness and digital security best practices.

- **Digital Literacy and Capacity Building Programs**

Improve borrower engagement and financial awareness. Launch training programs on digital financial tools for both borrowers and MFI staff. Develop multilingual, user-friendly mobile applications with voice-based navigation for low-literacy users. Conduct financial literacy workshops on using digital wallets, making online transactions, and managing digital loans.

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

Enhance digital infrastructure and technology adoption. Collaborate with governments, fintech firms, and technology providers to improve financial access. Leverage government grants and subsidies to scale digital microfinance initiatives. Establish co-branded fintech-MFI partnerships to develop customized digital products.

- **Implementing Blockchain for Transparency and Security**

Enhance accountability and prevent financial fraud. Use blockchain-based smart contracts to automate loan disbursement and repayment tracking. Develop tamper-proof, decentralized ledgers for transparent borrower records. Collaborate with regulators to ensure compliance with data protection laws.

- **Regulatory Compliance and Digital Frameworks**

Align digital microfinance operations with legal and financial regulations. Work with regulatory bodies to establish clear policies on digital lending, data privacy, and fraud prevention. Ensure MFIs comply with Know Your Customer (KYC) and Anti-Money Laundering (AML) guidelines. Advocate for policy reforms that support fintech-MFI collaboration.

- **Leveraging Big Data Analytics for Customer Insights**

Improve customer targeting and loan customization. Use big data analytics to identify borrowing patterns and customize loan offerings. Develop predictive models to anticipate repayment behavior and mitigate defaults. Implement customer segmentation strategies for personalized financial products.

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STUDY ON IMPACT OF CONSOLIDATION OF ACCOUNTS ON FINANCIAL PERFORMANCE OF CANARA BANK

Anil Kumar*

ABSTRACT

This research study investigates Canara bank's financial performance, both as a standalone entity and on a consolidated basis with its subsidiaries. Key financial metrics such as return on equity (ROE), net stable fund ratio (NSFR), cost-to-income ratio, return on assets (ROA), liquidity coverage ratio (LCR), and net interest margin (NIM) are analysed to assess the impact of consolidation. The findings reveal that post-consolidation, Canara Bank exhibits improved performance in metrics like ROA, NSFR, and cost-to-income ratio, with these ratios showing a year-on-year increase. However, metrics such as NSFR and LCR remain consistent before and after consolidation. Notably, the ROE metric indicates a decline of up to 1.55% following consolidation. This study highlights that while consolidation generally enhances Canara Bank's financial health, certain areas, such as ROE, require further attention to optimise overall performance. Consolidating financial accounts into separate accounts can result in increased borrowing capacity, cost savings, financial stability, a stronger market position, more efficient resource allocation, and regulatory compliance. However, banking consolidation can provide challenges such as complexity, loss of local concentration, regulatory concerns, operational risks, and increased debt. Thus, meticulous planning and execution are required for successful consolidation.

***KEYWORDS**: Financial Performance, Consolidated Financial Statement, Standalone Financial Performance, Return on Equity, Return on Assets, Net Interest Margin (NIM), and Cost-to-Income Ratio), Asset Quality, Capital Adequacy and Liquidity (Net Stable Funding Ratio and Liquidity Coverage Ratio).*

Introduction

The 1991 new economy policy opened the economy for external competition, enabling private banks to engage in economic activities alongside the public sector. As competition intensifies, it becomes challenging to sustain a single business activity, leading to industry firms diversifying their operations. In the initial days, banks had only two types of operations: accepting deposits and lending money to the borrowers, but now banks give a wide range of services to survive and to earn profits. Banks now involved in various activities like financial services (insurance, pension fund management, and portfolio management), securities trading (underwrite securities and government securities), real estate, trust services, consulting, subsidiaries, equipment leasing, mutual fund and trade on stock exchange. Now under the one roof banks provides many services and attract customers and investor to connect with these banks and increases the lending and borrowing activity to boost their development and growth as well as lead to growth of the economy. But when these banks carry their sides operations with core operation then their financial performance will better or worse. The financial statements are employed to evaluate the performance of the banks as standalone entities (with primary operations) and in conjunction with their subsidiary operations. The successfulness of these diversifications is then determined. The examination of a variety of financial and non-financial metrics is necessary to evaluate

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the performance of banks as standalone entities and in conjunction with their subsidiaries. Consolidated financial statement shows overall picture of the parent and its subsidiaries and enables its stakeholder to take wise decision before investment Titi, M. (2023). To evaluate a bank's standalone performance, it is necessary to evaluate its financial health and operational efficiency without taking into account its consolidated performance with subsidiaries or affiliates.

The following parameters are used to evaluate the performance of banks independently.

Financial Ratios (Return on Assets (ROA), Return on Equity (ROE), Net Interest Margin (NIM), and Cost-to-Income Ratio), Asset Quality, Capital Adequacy and Liquidity (Net Stable Funding Ratio and Liquidity Coverage Ratio). Consolidated Performance, including Subsidiaries evaluates using given below parameters. Comprehensive Income, Synergies and Diversification, Regulatory Compliance and Performance Metrics (ROA, ROE, and other financial ratios).

Review of Literature

Singh Y. & Milan R. (2023)[1].Analysis of financial performance of public sector banks in India. This research study analysis the financial performance of banks on the basis of camels model and draw conclusion like asset quality, Liquidity and inflation and business per employee is highly inversely related with public sector banks' performance, Capital adequacy is directly related with bank's performance and Management efficiency is insignificantly related with banks' performance. With these results study conclude that banks performance decline and it is advisable to go for merger and itself more stable.

Verma, D., & Chakravarty, Y. (2024)[2]. Impact of bank competition on financial stability-a study on Indian banks. This study finds that with increasing competition from non banking financial institution required to take more risk by the banks and impact their financial stability.

OLASEHINDE, S. A., SOLANKE, F. T., KUKOYI, O. E., & OGUNSINA, T. A. (2023)[3]. Effect of Merger and Acquisition on the Performance of Banking Industry in Nigeria. The analysis of the given study indicates a significant correlation between mergers and acquisitions and return on assets, earnings per share, and return on equity of deposit money.

Akintoye, I. R. *et al.* (2024)[4]. Financial consolidation and financial performance of insurance companies in Nigeria. The study encourage that govt. and investors should focus on improving financial consolidation to support economic growth and improve firm-level performance.

Titi, M. (2023)[5]. Consolidated Financial Statements. Given study shows that consolidated financial statement shows overall picture of the parent and its subsidiaries and enables its stakeholder to take wise decision before investment.

Balachandran, S. V., & Kuntluru, S.(2023)[6]. Consolidated or Standalone Earnings. Study shows that investor and market react differently to the parent company and subsidiaries company based on information available in standalone and consolidated statement.

Mioduchowska-Jaroszewicz, E. (2023)[7]. Investment decisions based on the financial performance of related parties. The study finds that holding company shapes the financial result of their subsidiaries companies.

Statement of the Problem

The study is regarding financial performance of Canara Bank. Canara Bank has 8 Subsidiaries. In its Annual Financial Report, the Canara bank consolidates its standalone annual accounts with its subsidiaries. The research problem is to find out whether there is significant impact of such consolidation? The study will compare the indicators of financial performance before and after consolidation of accounts. In compliance with sections 35A and 56 of the Banking Regulation Act of

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1949, RBI mandates that commercial banks (excluding LABs, RRBs, and cooperative banks) prepare and publish a consolidated financial statement in addition to a standalone financial statement in the format specified in section 29 of the same act. The ICAI's Accounting Standard (AS) 21 must be followed in the preparation of the consolidated financial statement[1].

Objectives of the Study

- To determine the impact of account consolidation (with subsidiaries) on Canara Bank's standalone financial performance.
- To identify any financial, operational, or strategic benefits or drawbacks associated with consolidation.

Sources of Data

Secondary sources of information utilised for data collection encompass Reserve Bank of India (RBI) bulletins and master circulars, which delineate the format and guidelines for preparing Consolidated Financial Statements (CFS); annual reports from banks that include information on various financial performance metrics, such as Return on Equity, Return on Assets, net interest margin (NIM), cost-to-income ratio, asset quality, capital adequacy and liquidity (LCR), and net stable funding ratio (NSFR); and books, periodicals, journals, research studies, and websites, which are employed for a comprehensive examination of the literature.

Methodology and Tools for Data Analysis

Descriptive statistics were used to analyse the data gathered from various secondary sources, such as the RBI bulletins and master circulars, annual reports from banks, books, periodicals, journals, research studies, and websites. With the help of these resources and using different financial performance parameters, we analyse the performance of Canara Bank before and after the consolidation of accounts and check weather performance is enhanced. To analysis, various analytical tools are employed, including Return on Equity, Return on Assets, net interest margin (NIM), cost-to-income ratio, asset quality, capital adequacy, and liquidity measures such as Net Stable Funding Ratio and Liquidity Coverage Ratio.

Data Analysis and Interpretation

- **Return on Assets**

ROA is a financial ratio that gauges a bank's profitability by comparing its net income to its total assets. A higher ROA indicates a higher efficiency in utilizing its assets, potentially indicating greater profitability..

Year	Return on assets (Consolidated Ratio's)	Return on Assets (Standalone Ratio's)	% Change in Ratio
31 March, 2022	0.48	0.46	4.34
31 March, 2023	0.81	0.78	3.85
31 March, 2024	0.99	0.97	2.06

Table 1 provides information about the annual return on assets of the Canara bank before and after the consolidation of accounts on a consolidated (with subsidiaries) and standalone basis. The data in the table reveal that the return on assets moved by 4.34% in 2022, 3.85% in 2023, and 2.06% in 2024. However, the benefits of consolidation decline as the year passes. The benefit of consolidation is higher in 2022 and continually decreases by 2024.

Net Interest Margin (NIM)

NIM is a financial ratio that gauges a bank's profitability by dividing its Net Interest Income (NII) by its total interest-earning assets, dividing the difference between the interest earned on loans and deposits.

A higher NIM is indicative of the bank earning more on its loans than paying on its deposits which usually points towards higher profitability.

[1] https://www.rbi.org.in/Scripts/BS_ViewMasDirections.aspx?id=12158

Table 2

Year	Net Interest Margin (Consolidated)	Net Interest Margin (Standalone)	% change in Ratio
31 March, 2022	2.19	2.15	1.86
31 March, 2023	2.38	2.33	2.15
31 March, 2024	2.5	2.45	2.04

The net interest margin data presented in the aforementioned table indicate that Canara bank's financial performance improved post-consolidation by 1.86% in 2022, 2.15% in 2023, and 2.04% in 2024. Nevertheless, the consolidation benefits appear to be discontinuous.

Cost to Income ratio (CIR)

CIR is a crucial financial indicator that measures a bank's efficiency in managing costs relative to income. It is calculated by dividing a bank's operating expenses by its income, and a lower ratio indicates better cost management and higher profitability.

Year	Cost to Income Ratio (Consolidated Ratio's)	Cost to Income Ratio (Standalone Ratio's)	% Change in Ratio
31 March, 2022	48.19	43.3	11.29
31 March, 2023	42.63	44.78	-4.80
31 March, 2024	55.68	47.03	18.39

Table 3 The results presented in the table indicate that financial performance, as measured by the cost-to-income ratio, was advantageous for Canara consolidation in 2022 and 2024, whereas in 2023, Canara Bank's standalone performance surpassed that of the consolidation.

Liquidity Coverage Ratio

Liquidity Coverage Ratio = High-Quality Liquid Asset Amount / Total Net Cash Flow Amount .The 30-day period was chosen as it is the estimated amount of time it takes for the government to step in and help a bank during a financial crisis. Thus, if a bank is capable of fund cash outflows for 30 days, it will not fall.

Table 4

Year	Liquidity Coverage Ratio (Consolidated Ratio's)	Liquidity Coverage Ratio (Standalone Ratio's)	% Change in Ratio
31 March, 2022	119.46%	119.41%	0.04
31 March, 2023	121.79%	121.79%	0
31 March, 2024	129.04%	129.04%	0

The Liquidity Coverage Ratio of Canara Bank, both consolidated and standalone, exhibits minimal variation, with a marginal difference of 0.04% in 2022. Furthermore, the Liquidity Coverage Ratio is projected to demonstrate consistent annual growth, increasing to 119.41% in 2022, 121.79% in 2023, and 129% in 2024.

Net Stable Fund Ratio

The NSFR encourages banks to sustain their operations through more stable funding sources over a longer period of time.

NSFR Guidelines

- Require banks to fund activities with stable funding.
- Mitigates future funding stress risk.
- Defined as available vs required stable funding.

The amount of total regulatory capital and liabilities that are expected to be dependable is known as Available Stable Funding (ASF). This amount is calculated using a variety of factor weights based on the type and maturity of liabilities, with liabilities that have a maturity of one year or more receiving 100% weight. The percentage of on-balance sheet and off-balance sheet exposures that need continuous funding is known as Required Stable Funding (RSF). The liquidity characteristics and residual maturities of the different assets held determine how much of this kind of steady funding is needed.

Table 5

Year	Net stable Fund Ratio (Consolidated Ratio's)	Net Stable Fund Ratio (Standalone Ratio's)	% Change in Ratio
31 March, 2022	140.09%	140.09%	0
31 March, 2023	139.35%	139.25%	.001
31 March, 2024	137.38%	137.38%	0

Canara bank's performance, as standalone or consolidated, remains consistent, except for a slight 001% change in 2023 and net stable fund ratio decline every year 140.09% in 2022, 139.25% in 2023 and 137.38 in 2024.

Banks' Return on Equity

Banks' ROE can reveal how effectively they employ shareholders' equity to produce profits.

ROE= Net Income/ Shareholders' Equity ×100

Table 6

Year	Return on Equity (Consolidated Ratio's)	Return on Equity (Standalone Ratio's)	% Change in Ratio
31 March, 2022	9.96	9.85	1.12
31 March, 2023	15.94	16.03	-0.56
31 March, 2024	18.4	18.69	-1.55

The results show that the ROE of Canara Bank continuously increases for both consolidated (with subsidiaries) and standalone year by year. However, the Canara Bank performance as consolidated (with subsidiaries) has become worse, and it shows there is no benefit to consolidation.

Identifying Financial, Operational or Strategic Benefits or Drawbacks

In a dynamic environment, intense competition poses significant challenges for industry survival and prompts organisations to implement innovative strategies to enhance performance and gain competitive advantage. In the business environment, a company with a good reputation will have an advantage over its competitors, which can boost performance[1]. when we consolidate the financial accounts with standalone financial accounts will give us synergy effect like Increased Borrowing Capacity(with large assets base and strong cash flow attract lender leads to lower borrowing cost and favorable finance term), cost Efficiency (streamline operation and low administrative cost), Enhanced Financial Stability(portfolio diversification reduce the risk and improve financial stability), Improved Market Position(will increase customer base and geographical reach lead to increase market share and competitive advantage), Better Resource Allocation(with large pool of resources afford latest technology and enhanced their services lead to improved customer satisfaction), Regulatory Compliance(meets regulatory requirement and reduce the risk of penalties)[2]. While the consolidation of financial accounts in banking can offer several benefits, it also comes with potential drawbacks like complexity in integration, loss of local focus, regulatory challenges, operational risks, and potential for increased debt. These drawbacks highlight the importance of careful planning and execution when consolidating financial accounts in banking[3].

Conclusion

Canara bank's financial performance as standalone and consolidated (with its subsidiaries) is investigated in this research study with particular attention to metrics such as return on equity, net stable fund ratio, cost-to-income ratio, return on assets, liquidity coverage ratio, and net interest margin. Financial performance indicators like return on assets, net stable fund ratio, and cost-to-income ratio show that the performance of Canara Bank after consolidation gets improved, and year by year these ratios also increased in both cases. However, financial indicators like net stable fund ratio and liquidity coverage ratio show that performance before and after the consolidation of Canara Bank remained the same throughout the years. However, in cases of return on equity, Canara Bank's performance degrades by up to 1.55% following consolidation (with its subsidiaries).In today's competitive business world,

1 Polyarus, A. V., Severgina, A. A., &Borzenkova, K. S. (2013). Synergetic effect of merger and acquisition of industrial organizations. World Applied Sciences Journal, 24(12), 1701-1706.

2 https://www.investopedia.com/terms/s/synergy.asp

3 https://www.nerdwallet.com/article/loans/personal-loans/pros-and-cons-debt-consolidation

organisations must use new techniques to obtain a competitive advantage. Consolidating financial accounts into independent accounts can result in higher borrowing capacity, cost savings, financial stability, a stronger market position, better resource allocation, and regulatory compliance. However, banking consolidation can create obstacles such as complexity, loss of local concentration, regulatory issues, operational hazards, and increasing debt. Thus, thorough planning and execution are critical for successful consolidation.

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EFFECTIVE MANAGEMENT PRACTICES FOR SUSTAINABLE DEVELOPMENT: PERFORMANCE, IMPLICATIONS AND CHALLENGES

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ABSTRACT

Sustainable development is very important for the welfare of people, society and planet as a whole & for future upliftment also. Now a days it has also become important for any organization to follow effective management practices for sustainable development so that they can also make a contribution in reduction of carbon emission and for the upliftment of the society. This paper explore the effective management practices adopted by the companies, the amount of investment the corporations are doing on CSR activities and also the impact of their CSR investment on their ESG Scores. This study also highlight that despite having good investment there are various other challenges which Corporations are facing today. This study also shows an intensive literature review regarding Sustainable Development Management Practices which also show an intensive research gap of challenges faced by the corporation in implementing the sustainable development management strategies. In this paper a mixed research methodology of both quantitative and quantitative is used. This study also show the relationship and impact between investment on CSR activities and ESG Score through Correlation and Regression. There are various Sustainable development management practices like Environment Management System (EMS) , Environment Impact Analysis (EIA) ,Sustainable Production Technique , Sustainable Marketing, other CSR activities like awareness campaign for public , donation for underprivileged people & other philanthropic activities . This study also show different challenges and obstacles which are faced by the corporation these days in implementing these practices.

KEYWORDS: *Sustainable Development, Carbon Emission, Ecological Hand Printing, Corporation, Project Management, Environment Management System, Environment Impact Analysis*.

Introduction

Sustainable development means that meeting the needs of the present generation without harming the growth of the future generation. In today's scenario it's important for a firm, industry or any institution to follow such management practices which does not harm the environment and create less carbon emission. These practices should also lead to the 'Ecological Hand printing' which means more and more positive contribution towards the environment. Sustainable development management practices consist of organizational practices that ultimately lead to the sustainable development. It involves economical production and consumption that minimize the negative environment impact and increase the conservation of resources. We will also understand the interrelationship between the management practices relating to strategy socio –environmental innovation and sustainable supply chain. This research proposal aims to investigate all the pillar of sustainable management which are human, social, economic and environmental and their interrelationships. The research will also include the impact of sustainable development project management practices on organization itself, society and on the

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planet as a whole. It is the activity of managing a corporation ‘s impact on the three keys bottom line – profit, people and planet – so that all three can coexist and flourish well into the future. It will help the corporation in long run. A growing number of corporation from a wide range of industries including transportation, utilities, consumer goods and real estate pursuing sustainable management goals. The study will show light on that how sustainable project management practices can do wonder to the corporation, people and planet in long run if it is implemented in a proper way. It mainly includes practices like ‘Environment Management System and Environment impact analysis.

Literature Review

Aghaegbuna Ozumba**,** Chothia Tasmiyah **(Sustainability in Project Management Practice, MATEC Web of Conference) January 2020:** The author discuss about various challenges faced in the sustainability project management practices. Various difficulties like assessing the green construction of the project ,difficulties in selecting the subcontractor in providing the green construction services ,more time is required to complete green construction practices on site and more alteration and variation with the design during the construction process. The author also find out some client related challenges these are specific budget allocation for the green project , the level of risk the client is willing to take on green technologies ,the client also take a lot of time in taking the decision .Some external challenges are - Government policy; the lengthy body of standards’ approval process for new technologies; and unforeseen circumstances in a green project. Most of the threats to the application of sustainability in PM are related to planning, the project, the project team, and the client. The biggest challenge is the meeting the objectives within the defined budget, incorporation of new technologies ,increased cost of equipment. The sustainability principle can be connected with project management but the manager has to be more challenging and risk taker.

V.K. Chawlaa, A.K. Chandab, S. Angraa and G.R.Chawlac(The sustainable project management: A review and future possibilities) Journal of Project Management -2018: The author finds out that the sustainable project management can be achieved by taking appropriate measures towards it.The decisions in the context of projects must address sustainability at all stages of project planning, scheduling, execution, completion furthermore the decision makers should consider benefits of customers, society, and the mother-nature. Decision makers of projects must consider issues of environmentalists and social workers to achieve the success of their projects. Authors observed decision making as the most critical and significant action to avoid and counter various potential threats and challenges of green construction projects. In order to take right decisions and selection of appropriate measures, the decision makers should improve and strengthen their information and skills in key fields and subjects to ensure successful and sustainable projects. It becomes clearly evident that the processes of selecting appropriate measures or consideration for right decision are highly significant for sustainable project management. Furthermore, it is also understood that the correct decision making is a unique attribute for any decision maker which should be constantly improved to achieve high efficiency and success rate in the actions taken for sustainable project management in the light of the taken decisions. Companies can ensure sustainability in their projects by formulating multi-objective project criteria by considering some critical parameters. Some critical parameters from sustainable project management such as profitability, safety, transparency, ethicality, nature-friendly, social acceptability, fulfilling the stakeholders and the customer's expectations were also identified to use aforesaid parameters as the weighting parameters in the multi-objective sustainable project management problems to identify and gauge the sustainability issues for the projects under consideration.

Rashid Maqbool, Emily Jowett (Conserving a sustainable urban environment through energy security and project management practices, Journal-Environment Science and pollution research), January 2022: Authors found that Construction has been highlighted as one sector that could reduce its effect on the environment by implementing more sustainable methodologies. However, there are many different challenges preventing sustainable construction practice, and despite existing research providing advice for carbon emission reduction, these practices are being somewhat neglected. State-level enforcement and government policies are said to be a vital force in the shift towards sustainability, lack of financial incentives and current investments in high carbon energy supply are also contributing to the problem significantly. There are several factors involved with sustainable practice and there is still a lack of implementation of such practice. The study finds that government involvement is necessary in these actions moving forwards; however, further education on these topics may still be beneficial for construction industry professionals, especially those with a lower level of education, or alternatively, a higher level of education but with little work experience. The author suggests that the climate change mitigation must be adopted for sustainable urbanization. The policy makers and the government's involvement is also vital for this purpose . If infrastructure is to become more efficient in rapidly urbanizing cities, then investments need to be made in encouraging stakeholder trust, communication and collaboration as well as general awareness of sustainable practices. That investment should ideally come from firms, however governments could work with and financially aid organizations to coordinate and rejuvenate potentially polluted and highly populated cities.

Murat Gunduz and Mohammed Almuajebh (Critical Success factor for Sustainable Construction Project Management, MDPI) March 2020: The author studied the various critical factors (CFCs) around 40 which effect the success of the sustainable construction project management .Factors from past research were gathered and compiled under seven categories, namely, project-related factors, business- and work-environment-related factors, client-related factors, project management factors, design-team-related factors, contractor-related factors, and project-manager-related factors.The results indicate that the majority of the significant factors were about financial problems (Mechanism of financial payments, project's adequate funds/resources), administrative aspects (Influence of client/client's representative, availability of experienced managers and skillful workforce), and the authorities' approval mechanisms (statutory approvals environment).Each factor affects in different way to the success of sustainable construction project management. Manager has to be very cautious in dealing with them.

Research Objectives

The Primary Objectives of this research are as follows:

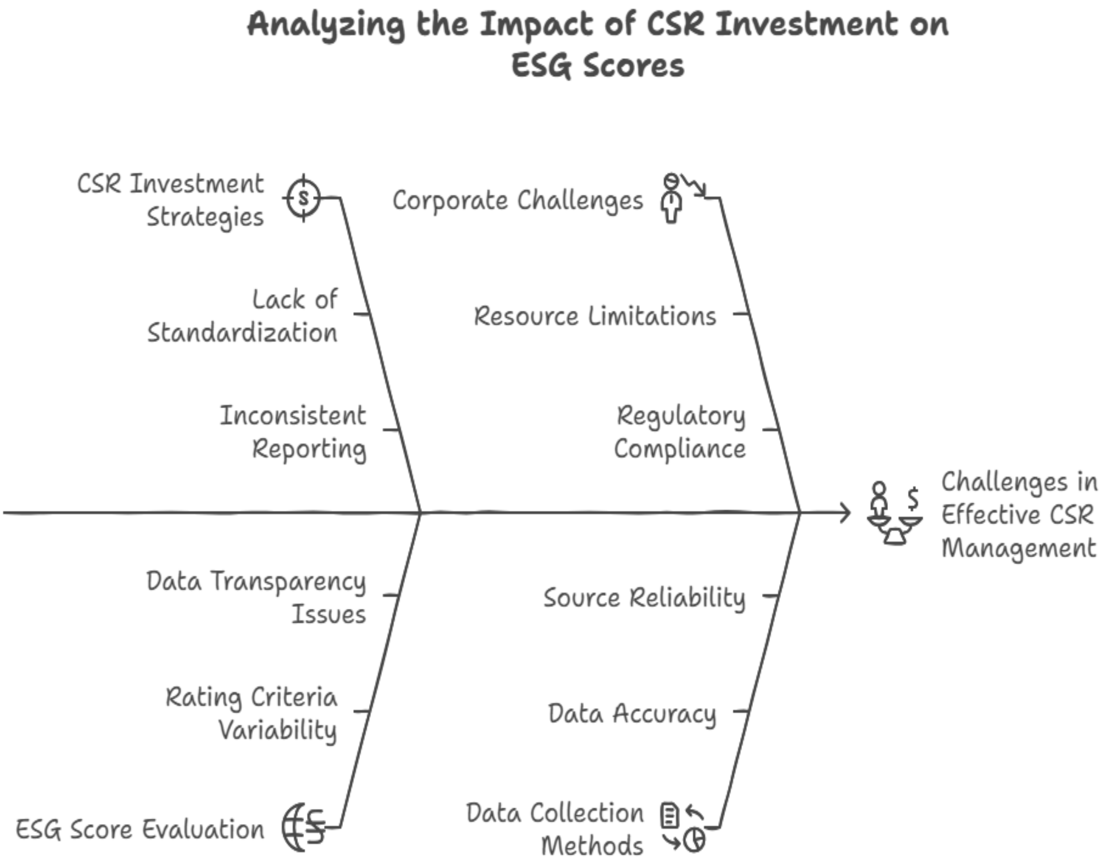
- To know about Sustainable Development Project Management Practices more and more.
- To examine the extent to which an organization's projects and activities can have an impact on the environment, people and planet.
- To explore how the Sustainable Development Project Management Practices can help the organization in minimizing the negative impact on environment of its projects and activities etc.
- To identify potential challenges and strategies in implementing the Sustainable Development Project Management practices in the organization.
- To know about the impact of investment on ESG Score of different company.
- To analysis that is only high investment on CSR activities lead to the high ESG Score.

Research Methodology

A mixed method approach is used an Intensive Literature review is done and secondary data of few companies are collected related to their investment on CSR activities and their ESG Score according to S&P Global . Both type of Method Qualitative & Quantitative Methods are used to show the relation between CSR investment of companies and their ESG Score and to show the various challenges corporates are facing in fulfilling effecting management practices. This research is both descriptive and analytical.

Sources of Data

- **Qualitative Data:** This data is collected in the form of literature reviews from the various research paper available on various journals. From the literature review, a potential research gap for development of proper strategies in implementing the sustainability in project management is needed. The research will also try to find out the various challenges faced by the corporations in implementing effective management practices.
- **Quantitative Data:** The data about the investment by the corporates on CSR is collected from 'The CSR Journal' website and the ESG scores of the companies is taken from the S&P Global site. Through the tools of correlation and regression data analysis is done which show the relationship & impact of investment done by companies and their ESG Score.



Data Analysis

A Brief Understanding of S&P Global Score:

It measure a company's performance on Environment, Social & Governance. The Score is based on the scale of 0-100. 100 is the highest Score.

- **Environment –** It show that how much success a company get in reducing Carbon Emission and in Ecological Hand printing.
- **Social –** It show that the impact of company on its various stakeholder like customer, employees and society as a whole.
- **Governance –** It show business ethics, regulatory compliances and transparency adopted by the company.

As shown in Table 1

Table 1: ESG Score & CSR Investment of Indian Companies

Company Name	Investment In Crores (year -2023-2024)	ESG Score (S& P Global) (year -2023-2024)
Adani Green Energy Limited	650	70
Apollo Tyre	15.7	44
Asian Paints	90.8	66
Tata Consumer Products Limited	20.12	65
Hindustan Unilever Ltd.	234	76
JSW Steel Limited	235	82
Infosys	577	79

Correlation

Investment	**ESG Score**
650	*70*
1	0.68887
0.688817	1

A through analyzation of this table through Correlation shows that there is a positive relation between the Investment done by companies on CSR and their ESG Score.

Summary Output		
Regression Statistics		Investment In Crores
Multiple R	0.540046608	ESG Score (S& P Global)
R Square	0.291650339	
Adjusted R Square	0.149980407	
Standard Error	11.71571277	
Observations	7	

Now Regression analysis if we take Investment as Independent &ESG Score as Dependent Variable we find the following results

ANOVA					
	df	*SS*	*MS*	*F*	*gnificance F*
Regressio	1	282.5675	282.5675	2.058661	0.210811
Residual	5	686.2896	137.2579		
Total	6	968.8571			

	Coefficients	*andard Err*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 95.0%*	*pper 95.0%*
Intercept	61.93455	6.548792	9.4574	0.000223	45.10034	78.76875	45.10034	78.76875
X Variable	0.026587	0.01853	1.434803	0.210811	-0.02105	0.07422	-0.02105	0.07422

Through above analysis we can see that Multiple R is 0.54 this is Correlation Coefficient which shows a linear relationship between Investment &ESG Score but this is not so strong .

R Square is 0.2916 or we can say it is 29.17 % which means that investment explain about 29.17% of the variation in ESGScore . It means 70.3% variation in ESG Score is due to other factors than Investment.

Challenges in Effective Management practices for Sustainable Development Projects Other than Investment are as follows:

- **Climate Change:** Climate change also affect CSR Project . The tools & technique like EMS (Environment Management System) & EIA (Environment Impact Assessment) are not so easy to apply in organization. Organization need a lot of trained employees & experts for this.
- **Waste Management:** Waste Management is another major issue due to increasing environment regulation, high operation cost and sustainability targets.
- **Government Regulation:** Irregular policies, Corruption & lack of Infrastructure also affect and create obstacles for business Organization in implementing effective management practices for Sustainable development.
- **Poverty & Unemployment:** Resources exploitation, Inequaliy, lack of awareness and unsustainable economic condition, poor waste management these also affects the business organization in implementing CSR activities .
- **Regional & External Risk:** Economic Crisis at world level, Sudden Change of political party in power, Cultural Disparities all these factors also affect sustainable development management practices.

Conclusion & Recommendation

This study shows that there are a lot of Sustainable development management practices but implementation of all these include a lot of challenges and effort. These challenges affects or create obstacles in achieving the targets of ESG Score. This paper is recommending following recommendation for facing the challenges:

- Proper utilization or proper management of Investment done on CSR activities is necessary. Mere investment can't bring fruitful results if it is not in right direction.
- Proper training must be given to the employees regarding the CSR projects too. If our Employees & Managers will be trained and educated about the Environment Management System & about the environment Impact Assessment.
- Proper technique for Sustainable Production should be used so that waste can be minimized.
- Waste Management Practices should be started from the first level of production till the last.
- Government should frame such kind of policies which can lead in the support of the corporates for the CSR activities.

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ARTIFICIAL INTELLIGENCE IN FINANCIAL SERVICES: ADVANCING RISK MITIGATION AND FRAUD DETECTION

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ABSTRACT

India's financial sector is no longer stranger to digital transformation. Artificial Intelligence (AI), automation and bots have been an integral part of the finance sector for several years now. Risk mitigation and fraud detection are critical and prominent areas in financial services because they protect financial institutions, customers and financial system from significant threats. AI with its innovative approaches/ techniques like Machine learning, Neural network, Natural language model, predictive and sentiment analysis assist for risk prevention and management whereas real time fraud detection, supervised & unsupervised learning models helps to prevent fraud. AI offers more comparative advantages than traditional strategies of risk mitigation and fraud prevention. AI technology in field of financial services not free from limitations and challenged with issues relating to data accuracy, models complexity, legal compliance and cyber security etc. A well balanced approach to technological advancement and ethics will contribute to advantages of AI and also focus on various risk aspects. AI is appropriate answer for risk management through its capability to augment human intelligence, and process and analyze data sets accurately and rapidly. In financial world, AI based solutions can be utilized for existing risk management framework that set foundation for dynamic, hassle free data driven risk mitigation strategies offer seamless benefits. This paper attempts to provide insights on the issue of how risk and fraud can be best managed by using Artificial intelligence powered techniques and role of AI in finance sector. The study concluded that AI driven innovations in risk mitigation and fraud prevention increase the overall productivity of financial services industry but still full utilization is pending and depend on factors like trained manpower, legal framework, proper awareness among users and regular technological update.

KEYWORDS: *Artificial Intelligence, Financial Services, Risk, Fraud, Technology.*

Introduction

Artificial Intelligence is a collection of novel technologies, processes and approaches that are very much essential for the current and future progress of nation and society. Artificial Intelligence (AI) refers to a kind of technology that has been more popular and widespread in recent years. AI has the potential to completely transform many different types of businesses and sectors. The term "artificial intelligence" refers to a wide set of applications, some of which include machine learning algorithms, natural language processing, robotic process automation, and chatbots (Johnson, 2021).

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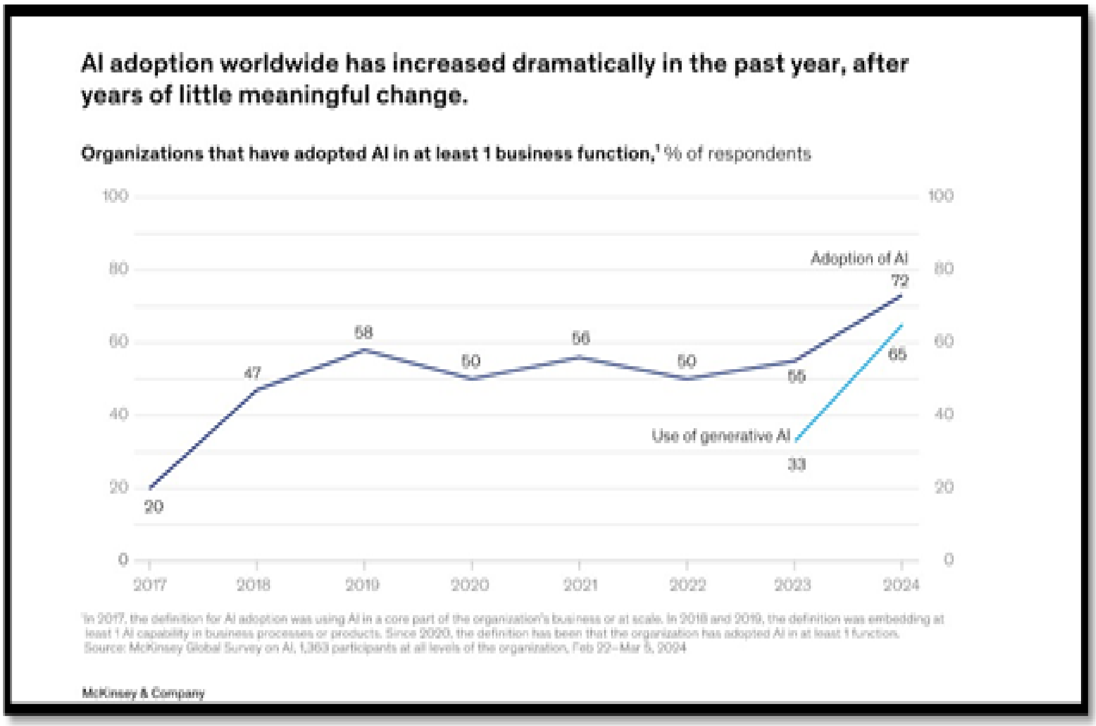


Figure 1

Source: McKinsey & Company: Adoption of AI

Main Components/Branches of Artificial Intelligence

Below are the five primary branches or subfields of Artificial Intelligence (AI), each contributing uniquely to the development and capabilities of intelligent systems.

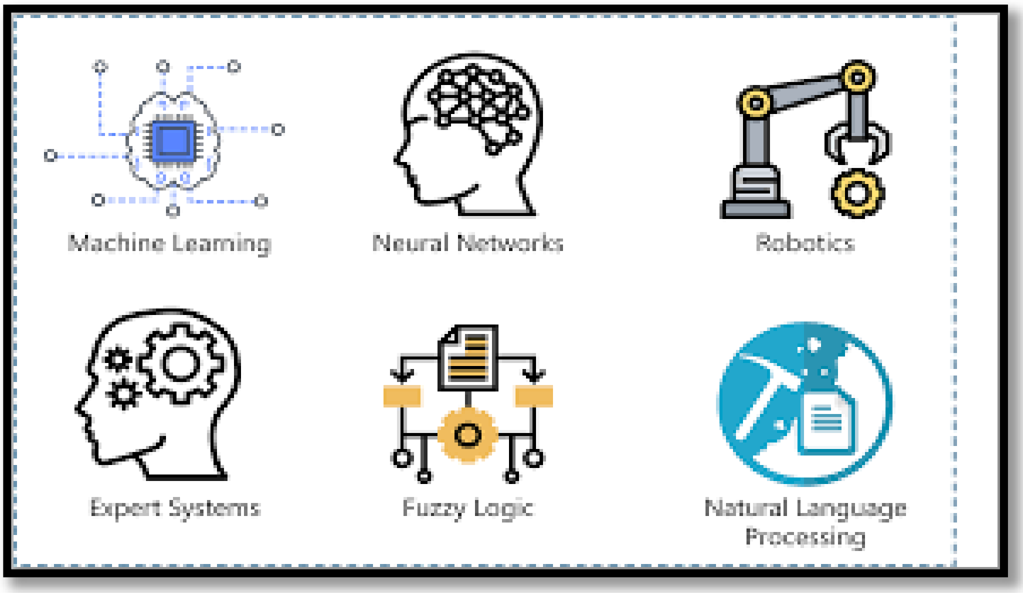


Figure 2: (Main Components of AI)

Financial Service

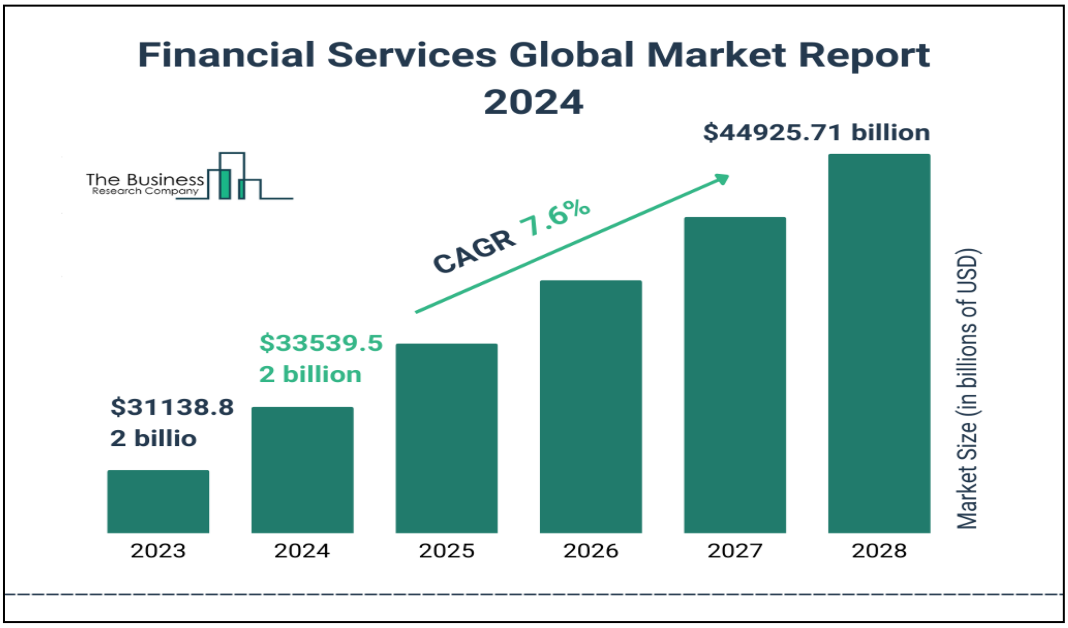
Financial service is an essential segment of financial system. Financial services are the foundation of a modern economy. Financial services refers to products and services delivered by financial institutions so that financial transactions and other related activities can be possible. Financial intermediation is must for efficient financial system. Indian financial sector passing through rapid expansion and diversification in terms of positive growth of financial service provides and new entrants joining the financial market. The financial sector is composition of many participants who contribute for financial development and support of nation. Major participants are commercial banks, insurance service provide organization, NBFCs, mutual fund companies, co operative ventures and smaller entities. All these players of financial system leading the financial sector in their respective areas. However, it is also true that this sector is dominated by commercial banks through its extensive existence and diversified offering catering the needs of masses. These banks having more than 64% of the total assets. Commercial banks are not only active in banking activities but also competing with financial service firms.

Indian Financial Service Industry- Market Growth and Development

The financial service sector is indispensable for the prosperity of a nation. The Indian financial services industry has undergone a metamorphosis since 1990. Financial services was a part of commercial banks and other financial institutions in the past. After the introduction of economic liberalization the concept of financial services get speed and emerged as game changer. Going forward, the increase in crypto currencies, increasing wealth of high-net-worth individuals, rising use of digital banking services, rising demand for alternative investments and increasing government support will drive the market. Now this sector take the shape of separate entity with full fledge existence.

The global financial services market reached a value of nearly $30.9 trillion in 2023, having grown at a compound annual growth rate (CAGR) of 7.23% since 2018. The market is estimated to grow at the rate of 7.39% and likely to be jump from $30.9 trillion to $44.10 trillion in 2028 that shows its expansion. The market is then expected to grow at a CAGR of 7.22% from 2028 and reach $62.6 trillion in 2033.

- Private wealth management industry of India reflect great potential in the past few year, Which also contribute to growth of India’s financial services industry.16.57 lakh HNWIs is expected till the end of 2027 and India can be fourth largest private wealth market in upcoming years.
- Today, India is one of vibrant economy having robust banking, insurance and financial service sectors. India’s insurance market will expected to touch US $ 250 billion by 2025. This growth offer an opportunity to life insurance premiums to earn US $ 78 billion from 2020-2030. The relaxation provided by Government of India in foreign direct investment rules for insurance sector proves to favourable opportunity for many companies to expand their working through the introduction of joint venture with foreign companies. Over coming years, many global insurance companies can join hands with Indian companies to capture the market and later the growing needs of customers.
- The Association of Mutual funds in India (AMFI) of more than three times growth in investor accounts by 2025 which shows that MF industry performance.
- Mobile wallet industry of India has experienced growth due to technological advancements, positive attitude of customer and supportive government policies. Giant businesses like Google pay, Phonepe, paytm etc. continue to evolve. The projection indicates that this industry could reach USD 4,993.9 by the end of 2033.
- Goldman Sachs report indicates that, global investors have been investing their money in Indian share market continuously. India’s stock market crossing the UK market and facing economic expansion, market capitalization and global growth all these contribute towards the progress of market.



Source: Financial Service Global Market Report, 2024

Literature Review

Xie, M (2019) in study reveals that development of AI applications and machine learning assist financial system many ways and has greater impact on macroeconomic and microeconomic level. In the study few suggestions and strategies were reflected that can be used in financial risk management and risk mitigation areas based on models developed through AI. This paper focusing on how technologies have revolutionized the financial industry through AI driven customer service and financial risks management services. **Marouani (2019),** in the digital age, artificial intelligence has been employed in various fields. This rapidly growing trend has proven to be very effective in various areas, especially in banking sector, because it provide solution to enterprise in both front end and back end processes, allowing for considerable, more efficient and cleverer work and an overall enhanced customer experience. The behavior purpose of this paper is to describe the benefits of incorporating artificial intelligence applications into banks, to emphasize the usability and utility, to shed light on their influence on customer behavior and to show how they potentially enhance their overall business. **Ganesh, S. Kumar, & Manoharan P. (2022)** Artificial Intelligence & Machine Learning in Finance: A Literature Review. Retrieved from Research Gate, reviews AI's increasing role in finance, focusing on risk management, fraud detection, and personalized finance solutions. It highlights the growing popularity and adoption rate of AI and machine learning enabled technologies. **Akmal Umer and Shah Qasim (2024)** focus on how predictive analytical model and AI synergies to improve fraud identification and risk calculation, emphasizing real time analysis and dynamic risk scoring. **Financial fraud detection through the application of machine learning: A literature review (2024)** This review presents a comprehensive analysis of machine learning techniques applied to financial fraud detection, utilizing PRISMA and Kitchenham methods to synthesize existing research.

Objectives of the Study

- To explore various AI techniques (e.g. Machine learning, Natural language processing) applied in detecting fraudulent activities and mitigating risks.
- To evaluate the effectiveness of AI based risk mitigation strategies compared to traditional approaches.
- To identify the role of AI in enhancing fraud detection mechanisms and risk management in financial institutions.
- To identify challenges and limitations associated with AI implementation in fraud detection and risk management field.

Research Methodology

The paper is based on secondary data. The research design used is descriptive in nature. Secondary data collected from various available sources through internet which include e-books, e-papers, online journals, articles and online reports available from financial services industry.

Artificial Intelligence Driven Fraud Detection and Risk Mitigation Techniques

- **AI Techniques Redefining the Financial Security**

In today's era of digital technology and fast paced world, financial fraud has become a growing threat in front of global financial institutions, affecting individuals and businesses alike. Fraudulent activities pushing back financial services industry and becoming a major concern for both service providers and customer. Latest projections showing that losses from online payment fraud exceeding $206 billion between 2022-2026. Fraudsters are using many unethical tricks i.e. from phishing attacks to sophisticated identity theft schemes.

It become a major challenge in front of all to effectively and securely deal with security related issues. AI is not just a buzzword, it is a game changer in fraud prevention through Machine learning, Natural language processing, Neural network. Here are some commonly and widely used AI techniques for fraud detection:

  - **Supervised and Unsupervised Learning Models:** Supervised learning models are trained on historical transaction data. A supervised learning algorithm might analyze amount of transactions, user behavior, transaction timing in order to assess the likelihood that a new transaction is suspicious or not. A unsupervised learning model assist when labeled data is not available. This model identify anomalies or deviations from normal behavior and indicates symptoms of fraudulent activities. Algorithms usually used to detect unusual patterns in transactions e.g. Isolation forests.
  - **Neural Networks and Deep Learning:** Deep learning models widely applied to detect fraud. Neural networks which considers core element of deep learning are capable to handle and processing numerous data. Its capability to detect sophisticated and complex fraud activities enhance data protection and uncovering hidden pattern. These models can provide real time predictions regarding transaction, user behavior and history of transaction which protect investors.
  - **Real-Time Fraud Detection:** The most transformative part of AI in fraud detection is its use in real time monitoring. AI enabled services are far better and efficient than traditional system. Modern technologies work on weaknesses of previous system like frequent delay, slow response to fraud, complexity in system all these lead to financial loss. In contrast, real time monitoring immediately identify suspicious activities and respond very fast towards fraudulent activities before they are processed lead to protection of client from prospective financial harm. Many financial institutions welcome AI system due to their applications in financial management. AI plays a prominent role in fraud detection to learn from historical data and detect fraud patterns. Data collection and monitoring, rule based systems, behavioral analysis, automated actions are few essential components widely applied and used in banking, e commerce, insurance and other services all around the world.

- **Artificial Intelligence Techniques: Redefining Risk Management Boundaries**

AI empowered many sectors with its presence specially financial sector with greater confidence. With AI applications within financial services sector it enables more accurate predictions, faster decision making, and robust monitoring systems. AI techniques in risk mitigation are:

  - **Machine Learning**: Machine learning with its fraud detection, credit risk assessment and market risk prediction applications helps to identifies patterns of fraudulent transactions, evaluates loan applications and analyses historical data to forecast market trends. Various techniques used under this are supervised & unsupervised learning and reinforcement.
  - **Natural Language Model**: NLP model is well suited to identifying market risks. AI technology can be assigned to monitor new sources, financial markets, data streams to calculate variety of market risks, including economic up downs, natural disasters, regulatory changes and newly introduced legislation that could impact markets. NLP models can

analyze enormous quantities of textual data — such as news articles, earnings reports and social media posts — and use them to quantify the prevailing sentiment and outlook of market participants. Financial institutions can respond quickly to any changes in sentiment and psychology of investor or public perception. Named entity recognition (NER) & text classification are the popular techniques under this.

- **Anomaly Detection:** Anomaly detection can apply to detect fraud, cyber security, and operational risk management. Statistical models sets thresholds for detecting outliers and neural networking techniques learns complex patterns to identify anomalies. With anomaly detection potential security breaches can accessed in real time and any inefficiencies or irregularities can also find out well in advance.
- **Predictive Analytics:** AI used Regression analysis and time series analysis for credit risk assessment (loan default) and market risk management (movement/fluctuations in stock market) and liquidity risk mitigation (forecasting of cash flow and fund need assessment).
- **Sentiment analysis and Process mining:** AI with its structured assessment of public sentiment to predict market movements and manage reputation risk of financial institutions. Process mining is also possible with the use AI like identification of inefficiencies in workflows and ensures processes align with regulatory standards.

Traditional and Modern (AI Based) Strategies of Risk Management: Comparison

Traditional Strategies	Modern Strategies (AI Based)
Used low tech tools like spreadsheets, physical audits and manual reporting	Use modern tech models like predictive analytics tools, Machine learning platforms, Robotics process automation, and cyber security tools.
Siloed approach that assumes that risks are managed in isolation	Integrated and cross functional approach that offers holistic insights
Basic cyber security measures (firewalls, antivirus)	Detect and respond to cyber threats in real time (Darktrace, Crowdstrike Falcon)
Data utilization more historical and manual	Real time and analytical data utilization
Use of block chain for fraud detection	AI uses data driven algorithms, machine learning, and predictive analysis to detect, predict and mitigate fraud
Department specific	Cross functional
Traditional approaches are reactive in nature	Proactive and predictive

Role of AI in Fraud Detection and Risk Management

Artificial intelligence is now a cornerstone of innovation in financial services, delivering tangible benefits to both institutions and customers. McKinsey’s 2023 banking report, mentioned that AI prospective benefits in banking sector in terms of 5% productivity improvement and $ 300 billion global expenditures reduction. The benefits is not limit up to this. AI powered fraud detection systems saved the banking sector over $10 billion globally in 2023 through fraudulent prevention applications. AI models reduce false positives in fraud detection by over 90% making investigations more efficient. Enhanced credit access has increased loan approval rate for underserved community by over 20% and improve risk modeling accuracy by over 30%, assisting financial institutions to minimize defaults. AI improving customer service with chatbots to safeguarding your finances from fraud, AI changed the standard by which banks operate and offers financial services to its clients. Customer oriented and high tech services like AI bots, biometric, fraud detection systems, digital advisers, one touch banking solutions offer great customer experience with high quality services. Many advantages are provided to financial activities. The fact that AI offers so many potentials for automation may be its greatest benefit. Financial institutions may improve a variety of operations' productivity, Personalized banking, trading, anti-fraud system, sales forecasting, stock market prediction, and credit card and loan decisions and efficiency by using automation. Apart from that, AI helps remove human biases and other mistakes brought on by emotional or psychological aspects since it may sometimes replace people in specific circumstances. There is a concern that artificial intelligence is more effective at data analysis. Computers can recognize trends in data due to machine learning, which helps firms produce more accurate reports and gives decision-makers insightful data.

Challenges and Limitations of AI Implementation in Financial System

- **Challenges in Front of AI Implementation**

Financial institutions all over the world using technology in their businesses. The success also challenged with some issues at various stages of implementation and use. This is depend upon stakeholders how they can convert or deal with the challenges. The AI issues related to privacy and security of data, algorithm biasness, ethical transparency and socio economic challenges like job losses, job rotation requires to handles and we cannot ignore them. Here are primary challenges:

- **Data Related Challenges:** Data quality, privacy and security, data availability all are the major questions while deal with AI techniques. In absence of good and quality data someone cannot take accurate predictions and positive results.
- **Complexity issue:** AI models needs continuous updates and advanced AI models like deep learning are often treated like black boxes which are difficult to explain. Hence complexity restricted the use of AI models.
- **Regulatory and Compliance Barriers:** Laws governing AI usage in financial services are still in initial stage which creates ambiguity. Further AI models leading to unfair treatment of certain groups.
- **Legacy Systems:** Integrating AI with existing, outdated systems can be technically challenging and expensive. It demand high operational costs. Job displacement or lack of skills may resist employees to adopt AI system.
- **Cyber Security Risks:** Adversarial attacks is major threat create by fraudsters. Fraudsters may manipulate AI systems by creating deceptive data. Model theft or misuse risk lead to data loss and unauthorized used of data.
- **High Costs and Resource Investment:** AI involves high investments in talent acquisition, hardware and software collection. Shortage or unavailability of trained personnel, expert in data science and cyber security also effect costs and timely outcomes.

These challenges are the barriers in front of financial institutions and when addressing these financial institutions can effectively leverage AI in areas of fraud detection and risk elimination while ensuring compliance, transparency, integration and customer trust.

- **Limitations of Implementing AI**

AI has transformed financial services by enhancing efficiency, decision making and customer satisfaction. AI offers number of benefits in fraud detection and risk mitigation in financial services, but it not completely free from limitations which put a question mark on its usability and outcomes in global environment. These limitations are not such that cannot be remove or block but how to handle and deal with such are great and not easy. AI implementation comes with certain limitations like Incomplete data/biased data, complexity of fraud patterns, compliance challenges, ethical concerns, accountability, overreliance on AI. Regular model updates, proper manpower, data accuracy and adopting a robust governance framework are measures can help mitigate some of the limitations of AI in fraud identification and risk mitigation.

Conclusion

Artificial intelligence is the world’s fastest growing technology. AI system have proven as transformative tool that enhance the speed, accuracy, security and adaptability of fraud prevention and risk management strategies. Financial services industry also get benefited through AI applications in various areas of risk management and fraud prevention. AI’s ability to analyze fraud threats, identify the behavior, find out anomalies in real time, sentiment analysis and rigorous security checks permit financial institutions to remain progressive in competitive world. Individual and institutional risk evaluations and real time indications through AI based analysis improve decision making capability. This paper states financial services become more secured, reactive, customer friendly while using AI based approach. Today financial services sector is more concerned with the issue of fraud and risk management and AI offer best solution of these issues with their innovative and high tech models (Machine learning, NLP, Neural network). By addressing the mentioned challenges and work on AI limitations, financial services industry can enhance the effectiveness of AI. This depicts that balanced and holistic approach to advancement of technology and ethics will maximize the advantages of AI so that future of AI can be more bright and customer friendly. The findings give insights for the proper utilization of AI for risk and fraud management while keeping attention on prevailing challenging so that full exploitation of AI positive outcome can improve the banking experiences.

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ARTIFICIAL INTELLIGENCE'S IMPACT ON CAREER COMPETENCIES, SHOCKS, SUCCESS, AND EMPLOYEE PERFORMANCE

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ABSTRACT

The rapid integration of Artificial Intelligence (AI) into the workforce is reshaping career competencies, influencing success, and driving performance across industries. While AI brings unprecedented opportunities, it also introduces challenges and disruptions that necessitate a rethinking of career preparation and development. This paper examines the multifaceted impact of AI on professionals' competencies, the potential shocks faced by the workforce, and the resulting implications for career success and performance. AI's role in enhancing or replacing specific tasks has led to a shift in the skill sets required for success in various sectors. Traditional competencies in fields such as administration, finance, and manufacturing are being complemented, and in some cases, replaced, by AI-driven capabilities. The ability to adapt to AI tools, as well as developing emotional intelligence and creative problem-solving skills, are now becoming critical. This paper explores how professionals must navigate this transformation by acquiring both technical skills related to AI and soft skills that are uniquely human. Moreover, the study highlights the concept of "career shocks," which are disruptions caused by technological advances, including AI. These shocks can manifest in job displacement, changes in job roles, or the need for rapid reskilling. Understanding the long-term impact of AI on job security, career mobility, and market demand is essential for professionals to make informed career decisions. In discussing career success, this paper argues that AI's influence requires a shift in how success is defined in the modern workplace. Success is no longer just about technical proficiency but includes adaptability, resilience, and continuous learning. Lastly, the performance of individuals and organizations is increasingly influenced by the effective integration of AI, with higher-performing entities leveraging AI to optimize processes, improve decision-making, and enhance productivity. This paper will offer insights into how AI is redefining career paths, the competencies that drive success, and how professionals can proactively respond to AI-induced shifts in the labor market.

***KEYWORDS**: Artificial Intelligence, Career Competencies, Career Shocks, Reskilling, Workforce Adaptation, Job Displacement, Success, Performance, Technical Skills, Soft Skills, Career Mobility, Organizational Performance.*

Introduction

Artificial Intelligence (AI) is fundamentally transforming industries, creating a paradigm shift in the labor market. AI technologies—ranging from machine learning to natural language processing—are rapidly automating tasks once performed by humans, leading to the disruption of job roles across sectors.

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This paper examines the implications of AI integration on career development, identifying the competencies required to thrive in an AI-driven economy. The scope of AI's influence spans healthcare, finance, education, manufacturing, and more, with varying degrees of automation affecting routine administrative tasks, data analysis, and even complex decision-making processes. By understanding the role of AI in the workforce, organizations can prepare for the shifting landscape of competencies, identify potential disruptions, and offer strategies for reskilling employees. However, the implications are far-reaching. As AI automates traditional roles, there is both opportunity and risk. AI is creating new job categories but also displacing existing ones. To avoid being left behind, it is critical that professionals, HR departments, and organizations stay ahead of the technological curve and invest in the right competencies.

AI has already made a significant impact across various industries, leading to major changes in job roles, responsibilities, and workflows. AI technologies, such as machine learning algorithms, data mining, and predictive analytics, have revolutionized tasks that were once manual, reducing human error and increasing productivity. However, as AI advances, many workers are faced with the challenge of adapting to an ever-evolving technological landscape. The rise of AI in the workforce has created a demand for new skills and has forced professionals to rethink traditional career trajectories. For example, in industries like manufacturing and retail, where automation has replaced many entry-level positions, individuals must now pursue new career paths that are rooted in technology and require a blend of technical and soft skills. Additionally, AI has been a catalyst for the rise of “career shocks” in which professionals must rapidly adapt to changes in their job roles, requiring them to continually reskill in order to remain competitive in the job market. The intersection of AI with career success has created new avenues of opportunity, but it has also made it necessary for individuals to redefine what it means to be successful in the workplace.

Research Methodology

This study adopts a qualitative research approach through a Systematic Literature Review (SLR). This methodology was chosen due to its effectiveness in synthesizing a large body of research from diverse sources to offer comprehensive insights into the broad and evolving topic of AI's effects on workforce competencies and employee performance. The SLR method is particularly beneficial for understanding complex, interdisciplinary topics like AI, as it enables the aggregation of findings across various industries, allowing for the identification of common trends and insights. By systematically evaluating peer-reviewed articles, conference proceedings, and relevant industry reports, this study offers an evidence-based perspective on AI’s impact. Studies were selected based on their relevance to the competencies needed for success in the AI-enhanced workforce and the disruptions AI introduces. However, potential biases in the literature may exist, particularly regarding geographical scope, as much of the research comes from developed economies with higher AI adoption rates.

Data Collection

Relevant articles were selected from academic databases such as Google Scholar, JSTOR, Scopus, and IEEE Xplore. The inclusion criteria for the study were:

- Peer-reviewed research articles, conference proceedings, and industry reports.
- Studies addressing AI’s impact on career competencies, employee success, and organizational performance.
- Research published between 2010 and 2024 to ensure the inclusion of the most current findings.

The exclusion criteria involved:

- Non-English language publications.
- Studies not focusing on AI’s effects on career development or workforce impact.

Analysis Method

The selected articles were categorized into key thematic areas such as:

- The evolution of career competencies and skills required due to AI.
- The impact of automation on workforce dynamics and job displacement.
- The role of AI in enhancing employee performance and organizational success.

Systematic Literature Review

A systematic literature review was conducted to synthesize the relevant studies in the context of AI's impact on workforce competencies and employee performance. The review highlighted four primary themes that emerged from the research: shifting competencies, workforce shocks and job displacement, employee performance enhancement, and the need for reskilling.

Conducting the Review

The literature review process involved a rigorous search for articles using keywords such as "Artificial Intelligence," "Career Competencies," "Employee Performance," and "Workforce Shocks." After screening and evaluating relevant studies, the findings were categorized to provide a clear understanding of how AI is reshaping the labor market. This approach ensures that the research reflects a comprehensive, evidence-based view of the AI-driven workplace transformation.

Findings: What Do We Know?

- **Shifting Competencies in the Workforce**

AI's integration into the workforce is significantly altering the types of competencies required across industries. Traditionally, many jobs were based on technical proficiency in fields such as finance, manufacturing, and administration. However, as AI begins to handle routine tasks, there is a growing need for professionals to acquire a deeper understanding of advanced technologies. Roles such as AI data analysts, robotics engineers, and machine learning specialists have seen dramatic growth. According to the World Economic Forum (2020), it is expected that by 2025, 85 million jobs may be displaced, but 97 million new roles will emerge that are more aligned with the technological needs of the future. This shift necessitates the cultivation of competencies like data literacy, coding, and AI integration skills.

- **Workforce Shocks and Job Displacement**

The term "career shocks" captures the disruptions caused by automation, AI, and technological advancements. These shocks not only impact lower-skilled jobs but also extend into mid-level roles that were once considered safe. For instance, autonomous vehicles and AI-powered logistics have begun to replace jobs in transportation, and roles traditionally held by clerks, telemarketers, and customer service representatives are becoming increasingly redundant due to AI systems. While AI offers the potential to drive innovation, it also presents the risk of job displacement, creating an urgent need for workforce reskilling programs. A 2019 McKinsey Global Institute study highlighted that AI could displace up to 15% of the global workforce by 2030, particularly impacting workers in administrative roles.

- **Enhancing Employee Performance**

While AI can lead to workforce disruptions, it can also enhance employee performance in significant ways. AI systems are used to optimize workflows, reduce operational inefficiencies, and enhance the decision-making process. AI's ability to process vast amounts of data quickly allows workers to focus on higher-order tasks that require creativity and critical thinking. For example, AI-powered tools are being integrated into human resource management to streamline recruitment processes and optimize talent acquisition. Similarly, in healthcare, AI supports doctors by analyzing patient data for faster diagnoses, enabling them to dedicate more time to patient care. This shift towards higher-value work requires employees to develop new competencies in strategic thinking, creativity, and human-centered problem solving.

- **Reskilling and Upskilling Needs**

The need for reskilling and upskilling is arguably one of the most significant implications of AI's rise in the workforce. Traditional job roles are being replaced by more specialized, technology-driven positions. The demand for AI knowledge in areas such as machine learning, data science, and cybersecurity is on the rise. In response, companies must invest in training programs and initiatives that promote continuous learning, enabling employees to stay competitive. Organizations are increasingly focusing on developing reskilling programs that provide employees with new skills and knowledge. For example, AT&T has invested heavily in reskilling programs, offering courses on coding and data analysis to help employees transition into higher-skilled roles in tech.

Limitations and Implications for Practice

While this research has provided valuable insights into AI's influence on career competencies, employee performance, and workforce disruptions, it is important to acknowledge several limitations. For instance, the geographical scope of the reviewed literature predominantly reflects findings from Western economies, which may not accurately capture the experiences of developing economies or industries with lower AI adoption. Additionally, the pace of technological evolution poses a challenge, as the rapidly changing nature of AI means that many insights may become outdated quickly.

From a practical standpoint, organizations must prioritize the creation of reskilling programs that are responsive to the evolving AI landscape. As AI-driven transformations gain momentum, companies should focus on fostering adaptability among their employees, encouraging continuous learning, and integrating AI as a complement to human creativity. Moreover, workers should focus on developing soft skills—such as emotional intelligence and problem-solving—that are more difficult to replicate through automation. This holistic approach will ensure that both individuals and organizations can thrive in an AI-enhanced workforce.

Conclusion

As Artificial Intelligence continues to advance, its impact on the workforce will only intensify, bringing both challenges and opportunities. While the automation of tasks poses significant risks, particularly for low-skilled and routine jobs, it also creates new career pathways in emerging sectors such as AI development, data analytics, and cybersecurity. Professionals and organizations must be proactive in adapting to this shifting landscape. For individuals, it is imperative to embrace continuous learning, developing both technical skills related to AI and soft skills that cannot easily be automated. Employers must invest in reskilling initiatives, ensuring their workforce is prepared for the evolving demands of the digital economy. Ultimately, the future of work in an AI-enhanced world will depend on the ability of both workers and organizations to balance technology with human creativity, empathy, and strategic insight. By embracing this dynamic, both individuals and organizations can unlock the full potential of AI, driving success and performance in the years to come.

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THE USE OF ARTIFICIAL INTELLIGENCE IN TRANSFORMING ETHNIC WEAR THROUGH SOCIAL MEDIA: BRIDGING TRADITION AND MODERNITY

Tanishqua*
Dr. Rashi Gupta**

ABSTRACT

Through social media, artificial intelligence (AI) is bridging the gap between tradition and modernity, modernizing the ethnic clothing sector in general. Artificial intelligence, statistical analysis, and artificial intelligence are examples of AI-driven technologies that provide business entities the ability to analyze consumer preferences, anticipated fashion trends, and personalize the shopping experience. Younger generations find ethnic clothing attractive because to social media companies' usage of AI to improve engagement through influencer alliances, targeted ads, and interactive content. Innovations based on AI, which include chatbots that help to shop, make automatic design suggestions, and are able to carry out virtual try-on, promote consumer interactions with products and fasten the transaction process. Secondly, AI will digitize traditional patterns and reconfigure them for modern fashion through modifications. That way, historical heritage is safeguarded, which ensures ethnic apparel will be continued in the world of fashion, today. By integrating AI into digital marketing and retail, ethnic wear brands can expand their reach, enhance customer satisfaction, and promote cultural fashion on a global scale. This paper explores how AI is reshaping the ethnic wear industry through social media, demonstrating its potential to modernize traditional fashion while maintaining its authenticity.

***KEYWORDS**: Consumer Preferences, Virtual Realities, Sustainability, Fashion Technology, Cultural Sensitivity, Artificial Intelligence, Ethnic Wear.*

Introduction

Artificial intelligence (AI) is an influential tool that facilitates the blending of traditional cultures with contemporary design concepts, allowing for a more engaging and individualized consumer experience (Gupta & Sharma, 2020). Rapid growth of technology has made it possible to incorporate AI

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into a number of components of the ethnic wear sector. The ethnic wear sector is undergoing a major shift that integrates modern consumer preferences while simultaneously promoting traditional skills by utilizing AI technologies like data analytics, adapted suggestions, and virtual try-ons (Chaudhary et al., 2022). The purpose of this paper is to investigate the various ways that artificial intelligence is changing ethnic clothing on social media. It will look at how AI-powered solutions are changing how people engage with brands, increasing brand awareness, and creating a stronger bond between the past and the present. This study will demonstrate how AI may be used to develop a more diverse and inclusive fashion industry where cultural heritage is respected by examining case studies and current trends. It is acknowledged and modernity welcomed. In the end, this investigation will emphasize the significance it is to use technology to maintain and develop the ethnic clothing industry, guaranteeing its continued relevance in a constantly changing global marketplace.

The Intersection of Tradition and Modernity in Ethnic Wear

- **Historical Context of Ethnic Wear:** The development of ethnic dress can be linked to ancient societies, when attire served as a symbol of social standing, skill, and ethnicity. The evolution of ethnic dress can be linked to ancient societies, when attire served as a symbol of social standing, skilled work, and cultural identity. Ethnic clothing evolved to meet shifting social norms and technical developments as cultures developed, resulting in a diverse range of designs that still have an impact on modern fashion (Singh & Kumar, 2021).

Ethnic clothing's blend of history and contemporary emphasizes the continuous conversation between conserving cultural heritage and embracing creative designs that satisfy the wide range of consumer preferences of today (Rao, 2020). A growing fashion culture has emerged as a result of this dynamic combination, where classic themes and methods are reimagined in novel ways to appeal to both modern aesthetics and nostalgic feelings (Mishra, 2019). This development ensures that cultural narratives stay relevant in a constantly shifting global marketplace by not only honouring the creative talent of previous generations but also inspiring a new generation of designers to experiment and create (Verma, 2022). This continuous change encourages customers to express their uniqueness and connect with their cultural background, creating a fashion culture that is as much about heritage as it is about personal identification (Sharma, 2020). Collaborations between skilled makers and modern artists are growing in popularity as firms welcome this change becoming more prominent, encouraging a conversation that integrates innovation and tradition (Kaur & Patel, 2021).

The Impact of Globalization on Traditional Fashion

The emergence of "fast fashion," which frequently uses traditional styles in produced in large quantities apparel, is a result of globalization. This has increased accessibility to traditional clothes, but it has additionally generated issues about cultural theft and authenticity loss (Bhardwaj & Fairhurst, 2010). A growing trend toward "slow fashion" aims at addressing this by promoting fair trade, ethical manufacture, and the maintenance of traditional methods (Fletcher, 2014). This change has been greatly aided by social media, which enables consumers to communicate with makers directly and discover the origins of their clothing, increasing awareness of the beauty and social significance of traditional fashion (Heinze & Fletcher, 2016). Furthermore, globalization has promoted global designer partnerships, leading to creative and culturally diverse collections (Nobbs, Hine, & Flick, 2012). Such collaborations encourage the fashion industry to be more inclusive and respectful of cultural heritage in addition to showcasing diversity (Thorpe, 2018). Traditional fashion is currently not only surviving but blooming in the global market because to the opportunities and challenges presented by globalization (Gupta, 2021).

- **The Rise of Artificial Intelligence in Fashion**

Artificial intelligence is transforming the fashion industry by helping to improve design ability and effectiveness in fabrication, advertising, and buying. Solutions powered by artificial intelligence are able to allow fashion businesses to anticipate consumer preferences and evaluate trends-requirements for designing personalized experiences for shoppers. One of the greatest applications of AI is trend forecasting, whereby machine learning scans huge data sets on fashion shows, social media, and online sales to predict future trends. (Gupta & Jain, 2021). AI is also used in design automation that allows companies to create novel color schemes, patterns, or even whole ensembles with minimal human intervention.AI improves the shopping experience in retail through customer support chatbots, virtual try-on technology, and personalized product recommendations. Social media channels use AI technology to help marketing people target appropriate audiences for advertisement. AI even helps in promoting sustainable fashion in the form of green manufacture and reduction of leftovers, along with efficient use of materials. In conclusion, artificial intelligence revolutionizes the fashion industry to become more creative and effective, hence customer-oriented in maintaining a fine balance between traditions and trends(Smith, 2020).

- **Overview of AI Technologies in the Fashion Industry**

Through innovations in development, production, and marketing, artificial intelligence is changing the fashion sector. While generative AI and other AI technologies produce new designs based on previous patterns, predictive analytics assists companies in forecasting trends and optimizing collections (Gupta & Jain, 2021). Personalized recommendations enhance client satisfaction, and virtual try-ons improve the online shopping experience. AI streamlines supply chains, encourages sustainability, and uses chatbots to offer real-time customer service. Fashion analytics provide useful information, and AI-powered marketing tools develop focused campaigns. These technologies are stimulating innovation and creativity in clothes design while making the fashion business more customer-focused, sustainable, and efficient.

- **Social Media as a Catalyst for Change**

The apparel industry is changing due in significant measure to social media, which is influencing consumer preferences, shaping trends, and making the market more open and transparent. Since everyone with a smartphone can now influence styles due to the rise of Instagram, YouTube, and Pinterest, fashion enthusiasts and influencers have the power to set trends, democratizing the preferences of consumers. On social media, brands communicate with consumers directly in order to get their input and build greater connections. This increased transparency and sense of rightful demand for ethical practices hold companies accountable for the sustainability efforts and labour practices of their companies. Social media also gives room to increase diversity and inclusivity; it depicts models of different ages, sizes, and backgrounds. E-commerce integration allows one to shop directly from posts, boosting online sales. User-generated content forms real fashion inspiration, which impacts the purchasing decision.

- **The Influence of Social Media on Fashion Trends**

The democratization of style by social media and allowing influencers to have the power of creating trends in fashion has really altered the trends. Fashion enthusiasts have the potential of inspiring millions of followers, changing what is trending, through shared looks on various platforms like Instagram, YouTube, and Pinterest (Kim & Ko, 2012). It has made fashion more accessible and diversified because of the shift in power from traditional houses of fashion to individual designers. Brands today talk directly to customers on social media to get their opinions and form closer bonds.

This contact fosters transparency and ethical behaviours since customers can easily research and share information about a brand's sustainability efforts (Peters et al., 2020). Social media also encourages diversity and inclusion through the use of models of all ages, sizes, and backgrounds. Sales online are boosted when visitors can buy directly from posts through e-commerce integration. Decisions to buy are influenced by user-generated content, which provides authentic fashion inspiration. Social media reaches around the world and opens upmarkets for fashion companies to encompass a range of cultural influences; real-time feedback allows brands to respond quickly to customer desires. Overall, social media has transformed the fashion industry, making it more colourful, diverse, and consumer-centric.

- **Social Media Case Studies of Popular Ethnic Clothing Brands**

Case Studies

- **Biba:** Meena Bindra founded Biba in the year 1982. It is one of the leading brands that provide ethnic and fusion clothing for women. The company increased the turnover from the sales through social media marketing strategies. The company uses old techniques such as block printing to make designs that are stylish and affordable. From the sale through both customers and company-owned outlets, turnover has increased in Biba. The firm wants to stabilize its position in India before going global. To increase sales and expand its consumers, Biba uses social media platforms like Facebook and Instagram, along with SEO tactics and interesting content.

- **Manyavar**: Manyavar is known with wedding apparel and has established itself as a top traditional wear brand. The brand started with a small capital and has grown to have a retail presence of over 600 outlets in more than 200 cities across three countries. Manyavar has used social media to sell itself by adopting a target-centric approach and experimenting with different media blends. The brand has successfully expanded its reach through its retail network and strong marketing activities in ethnic wear.
- **Anokhi**: Anokhi is a well brand known for its hand block printing and traditional Indian apparel. The brand has effectively used social media to showcase its unique designs and creativity. Anokhi's Instagram and Facebook pages feature exciting images of their products, behind-the-scenes content, and stories of artisans. This helped the consumers to build a loyal image base and attract new consumers interested in sustainable and ethnic wear**.**
- **Sabyasachi Mukherjee**: Indian fashion designer Sabyasachi Mukherjee is well-known for his wedding gowns and traditional Indian clothing. The brand has a strong presence on social media, with a large following on Instagram and YouTube. Sabyasachi uses these platforms to share his design pattern, fashion tips, and cultural insights. His engaging content and storytelling have made his brand a favourite among fashion enthusiasts and brides-to-be.
- **Ritu Kumar**: Ritu Kumar is a pioneer in Indian fashion, known for her revival of traditional attire and apparel. The brand has leveraged social media to highlight its rich heritage and creativity. Ritu Kumar's social media profiles feature elegant images of their collections, fashion shows, and collaborations with designers. This help the brand to maintain its reputation as a luxury ethnic wear brand while reaching with a wider consumer.

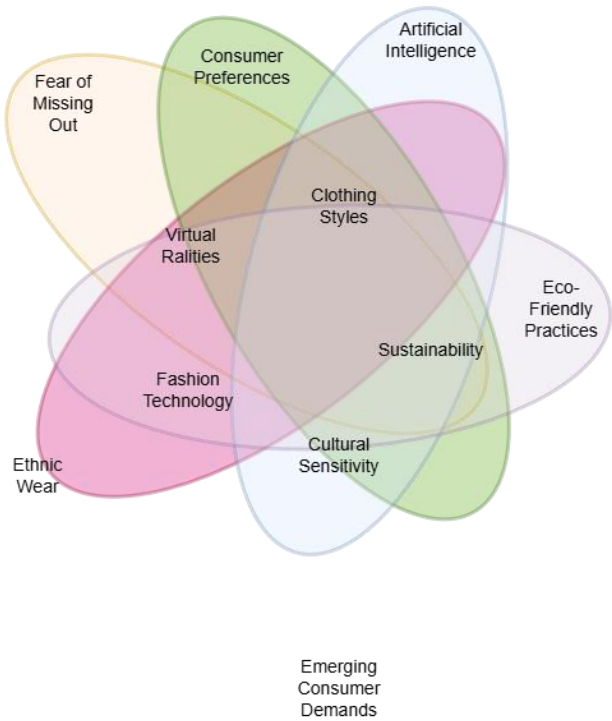
These case studies validate the ethnic wear brands positively use social media to build their brand, engage with consumers, and drive fashion.

- **Bridging Tradition and Modernity through AI**

This is how fashion's tradition-modernity AI-powered bridge integrates cutting-edge technology with traditional craftsmanship and current ideas in design. To ensure the respect of cultural legacy, the AI technologies used include generative design and predictive analytics to help the designers produce unique works that would be influenced by conventional methods. Virtual try-on and tailored recommendation services have been helping make ethnic clothing more accessible to today's shopper in an entertaining manner, upgrading the purchase process. AI power helps supply chains to optimize; in this aspect, AI actually inspires sustainability - as waste reduces, so will bad manufacturing approaches. AI develops the fashion sector into something beautiful with a smooth merge of ancient times and their evolution.

- **Virtual Try-Ons and Augmented Reality in Ethnic Wear**

Augmented reality (AR) and virtual try-ons are transforming the ethnic clothing industry by enhancing the online buying experience. These technologies reduce the hassle of returns and exchanges as they allow customers to see how clothing would look on them without having to physically try it on (Chen et al., 2019). AR apps offer to let the consumers see the apparels in the real world via camera phones, and virtual try-on uses AI technology that generates a lifelike rendering of how apparels fit on and look at different body forms (Zhang & Lee, 2021). This develops trust in decisions to buy plus enhances client happiness. Virtual try-ons and AR bring ethnic clothes closer and make them more accessible as well as more appealing through bridging the gap between online and offline purchase.



Literature Review

As per Johnstone & Lindh (2018) and Bedard & Tolmie (2018), researching on the long-term impact of social media influencers on consumer behaviour is worthwhile. In fact, from previous research conducted by scholars, it is already observed that the adoption of sustainable consumption among consumers has a linkage with influencer marketing. Also, it was found that simply because one changed the goals of their consumption, the latter may not necessarily have a sustainable mode of consumption. The term used for this phenomenon is "green gap".

Many earlier studies are on the factors that lead to the development of intentions rather than assuming that intentions automatically lead to behaviour. It is suggested that green gap research focus on the cure rather than finding the cause. (ElHaffar et al., 2020).Groening et al. (2018) suggest that opinion leaders or non-economic green influencers may have a role in bridging the green gap between intention and behavior. According to Vrontis et al. (2021), more qualitative research should be done on influencers and influencer marketing using real-world influencers, for example. Casalo et al. (2018) argue that further research should be conducted on the influence on actual behavior, in addition to looking at the impact on intention. In turn, it can be established that there exists a study gap concerning the role of influencers (marketing) in stimulating lasting change in consumer behavior and not just shifting attitudes and inspiring intentions, especially in light of the above facts and the paucity of research on this issue. Thus, the objective of this master's thesis is to find out how influential consumers might help close the green intention-behaviour gap, therefore stimulating and forcing lasting changes in consumer behaviour.

Table 1: Previous Literature about Social Media Influencers and Sustainability

Author(s) & year	Focus of the research	Theory/ Concept	Method	Findings
Johnstone & Lindh. (2017).	Sustainability awareness and age. Impact of Influencers in sustainable behavior.	Theory of (un)planned behavior.	Quantitative questionnaire and qualitative focus group interviews.	Sustainability awareness increases with the age. Importance of influencer decreases when age gets higher and vice versa. Influencers have impact in sustainable awareness amongst younger generations.
Kapoor & Balaji. (2020).	Sustainability communication in social media in hotel industry. Company vs Influencer.	Mcguire's communication-persuasion matrix. Message appeal.	Quantitate a single-factor between-subjects experiment.	Sensual appeal message posted by hotel is more effective. Guilt message posted by Influencer is more effective. Perception of guilt message posted by hotel is preachy. Perception of sensual message posted by Influencer is misleading.
Jalali & Khalid (2021).	Influence of IG Influencer on green consumption behavior.	Theory of planned behavior.	A quantitate self-administrated questionnaire.	IG influencers' photo content, green concern and GWOM worked as factors affecting followers' green attitude and green consumption intention. Perceived credibility plays a moderator role between GWOM and green consumption intention.
Chwialkowska. (2019).	Sustainability influencers driving green lifestyle adoption on social media.	Minority influencer theory. Social learning theory.	Multiple case study.	Influencers drive green consumer change by building a community that informs about products and their harmful effects, and by promoting green and sustainable options.
Rake. (2020).	Customer journey in sustainable fashion consumption and current and potential role of Influencers on that.	Customer journey. Para-Social Interaction (PSI).	Exploratory interviews.	Current role is source of inspiration and entertainment. Potentially role models in sustainable fashion consumption by providing information and being a trendsetter. A good brand-SMI fit is important.
Berne-Manero & Marzo-Navarro. (2020).	Influencer and relationship marketing serving Corporate sustainability.	Relationship marketing. Influencer marketing.	Structured questionnaire.	Micro influencer is perceived through closeness, friendliness, and naturalness. Macro influencer is perceived as more admirable and more credible through a more polished professional image.
Yesiloglu & Waskiw. (2021).	Consumer's motivations to engage with Influencers's sustainable content on IG.	Engagement.	Three-stage process of inductive content analysis. Instagram posts of five Sustainability Influencers.	Role of Influencer is source of information and inspiration. Educates and builds communities.

Gaps in Research

It was studied whether there is the possibility of preferences in "The Use of Artificial Intelligence in Transforming Ethnic Wear through social media: Bridging Tradition and Modernity"; however, by summarizing and bringing together findings into one view at our disposal, this needs further investigation for how differently different consumer preferences exist, and by which means would this shelf expand further. According to Yesiloglu and Waskiw (2021), the current study will fill in some gaps within the literature because it focuses on the culture or penetration of social media for reviews, comments, and rating on posts, as well as participating in social influence.

Description of Broadproblem Area

The present study will focus on to determine the effectiveness of Social Media Platforms by fulfilling the consumer preferences. The study will focus on wants and needs of the consumer which is essential for the consumers to understand the use and role of Artificial Intelligence in transforming ethnic wear through social media.

Objectives

Based on the research questions and identified research gaps, the following research objectives can be formulated:

- To identify demographic factors that "The Use of Artificial Intelligence in Transforming Ethnic Wear through social media: Bridging Tradition and Modernity"
- To investigate the influence of social media platforms on sustainable consumer preferences in ethnic wear.
- To assess how well each of the three social media platforms influences consumers' sustainable preferences for ethnic wear.

Research Methodology

This study will adopt a descriptive research design utilizing secondary data. This approach is appropriate as it allows for an in-depth analysis of existing information related to the research topic without the need for primary data collection.

Data Collection Source

Secondary data includes insights from academic journals, industry reports, government publications, books, and reputable websites. Social media analytics provide information on engagement, sentiment, and influencer activities related to sustainable ethnic-wear. These sources help to analyse the social media influences sustainable consumer preferences in ethnic-wear.

Hypothesis

- **H1:** Social media use and participation in environmentally friendly, sustainable activities have a strong correlation.
- **H2:** The connection between using social media platforms and choosing a sustainable lifestyle is controlled by value co-creation.
- **H3:** The link between adopting a sustainable lifestyle and social media activity is not significantly influenced by cultural standards or social media influencers.

Expected Outcomes

At the end of the study, we will understand that consumers are satisfied with the change and are motivated to shift their preferences toward social media platforms.

Results and Discussions

A previous literature review analysis of data shows that participants had a strong and broad favourable perspective toward sustainability. The results highlight both social media and influential advertising shape views and actions related to sustainability. Brands and influencers looking to identify with the ideals of environmentally concerned consumers will be significantly influenced by this shared desire to make sustainable choices. The study emphasizes the necessity of using smart advertising strategies that align with the modern consumer culture's rising acceptance and understanding of sustainable practices.

Future Scope of the Study

The study explores consumer preferences for ethnic wear on social media platforms, emphasizing the importance of understanding consumer needs and preferences. Findings highlight the dynamic role of social media in shaping consumer preferences and raising sustainability awareness. Younger consumers are more influenced by social media platforms, while older generations rely more on word-of-mouth and personal judgment. Sustainable consumer preferences act as role models and educators, promoting eco-friendly practices, though their impact on preferences needs further exploration. Additionally, the sustainability messages influences perception; sensual tones are more effective when used by companies, while guilt tones work better when used by influencers. The study evolving interplay between social media platforms, influencer marketing, and consumer preferences, offering valuable insights for marketers, consumers, and researchers.

Limitations and Future Research

This research like every other research includes limitations. This research concentrated on the SIs influence on their followers' consumer preferences through investigating the influence on followers' taste, choice and actual consumer loyalty. The forms have been filled by the consumers by using google forms and to know the influence from both SIs and their followers. The questions pointed out that SIs do have influence on their followers' consumer preferences in ethnic wear. However, in order to find out more detail ways how they are influencing on attitudes, intentions and actual consumer behaviour longer observational research must be concluded. Even though this research was able to identify some ways how SIs influence on their followers' attitudes, intentions and actual consumer behaviour, more research must be made. In the longer observational research, the influence of following SIs for the first time can be identified and seen how the consumer's attitudes and intentions towards sustainable consuming will formalize and be mirrored to actual consumer behaviour.

Conclusion

In conclusion, the integration of artificial intelligence in the ethnic wear industry, facilitated by social media, has the potential to create a harmonious blend of tradition and modernity. As designers and brands continue to leverage AI technologies, the ethnic wear sector can thrive in an increasingly competitive and diverse market. By embracing innovation while honouring cultural heritage, the future of ethnic wear looks promising, ensuring that it remains relevant and cherished across generations.

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ANALYSING THE CRITICAL ROLE OF ESG AND CORPORATE GOVERNANCE: A STUDY ON HDFC LIFE INSURANCE COMPANY LIMITED

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ABSTRACT

Sustainability is incorporated with the incorporation of green investments. Unlike before, it is not just limited to Environmental concerns, rather it also considers the Social and Governance factors i.e. ESG. It is a framework designed for the Companies to assess their performance on various factors. This plays a crucial role in enhancing the performance and value for all stakeholders and the community as a whole. The brand value is also strengthened along with the growth in long term financial stability which also gains investors' confidence for their risk management and Life Insurance schemes. HDFC Life, being one of the leading Private Insurer Giant maintaining the base of capital, a robust one have its commitments towards ESG principles and Corporate Governance in their vision as a responsible and ideal life insurer. The ESG philosophy and its crucial role is analysed in this study as followed by HDFC Life.

***KEYWORDS**: Sustainability, HDFC, Life Insurance, Corporate Governance.*

Introduction

'Life without insurance is meaningless', this is not just a saying but an opinion which should reach each individual to help him face the unforeseen risks and uncertainties attached with his life every now and then. The risk is not always about the life threatening incidents but also includes the financial risks or losses which can be posed in front of anyone at any point of time. To face these times, the awareness level among people plays a crucial role to give a certain level of security which takes them towards the investment options to get themselves insured for future. With the idea of giving protection and security to the people, insurance sector has been emerged. According to the Financial Stability Forum, insurance services are categorized into 3 major categories: life insurance, non-life insurance and reinsurance. For the purpose of tax planning and for taking investment decisions, the risk associated with them is covered by the Life Insurance sector. The financial sector includes varied industries like Banking, general insurance, Life insurance, etc… but the steady growth is being observed in the life insurance sector leading to the overall growth of the insurance industry. In instances of unfortunate events like death of any breadwinner, the risk factor can be eliminated by way of providing halfway solution in regard to the incidents occurring due to demise and providing a sense of certainty in place of uncertainty. In short, life insurance is concerned with two hazards that stand across the life-path of every person: firstly, that of dying prematurely is leaving a dependent family to fend for itself, and secondly, that of living till old age without visible means of supports. The study revealed that among the booming sectors existing in the Indian economy, Insurance sector had become as its important part since the Economic Reforms of 1991 showing an astounding improvement of 35-40% growth annually where the insurable population accounts for less than 40% of the total. In the post liberalization period, the life insurance industry also witnessed a remarkable growth and it is being forced to face a lot of healthy competition from many domestic and international insurance players from the private sector. Services sector has the largest

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share in the GDP of the Indian economy (Economic Survey) and the Life Insurance sector is contributing approximately 75% of the total contribution of Insurance Sector in GDP of India. Life Insurance can't just deal with the premiums and claims in the current scenario, they have to think and work for the environment and society as well. This takes us to the major subject called Sustainability, which is incorporated with the incorporation of green investments. Sustainable Business, also known as green business, is the one which tries to fulfill the conditions of Triple Bottom Line. It attempts to have a positive impact on local or global environment or a minimal negative impact. It is not just limited to Environment but also considers the Social and Governance factors i.e. ESG, which is a framework designed for the Companies for assessing the performance on various factors. 24 Private Insurers are competing in the market with one Public Sector Corporation i.e. LIC. But LIC is not doing much towards the Sustainability or ESG factors, so the Private Insurers take the lead in respect of this. HDFC Life, being one of the leading Private Insurer Giant, which offers a wide range of individual and group insurance schemes. It is a joint venture between Housing Development Finance Corporation Limited ('HDFC Ltd.'/ 'HDFC'), which is India's leading housing finance institution and Standard Life (Mauritius Holdings) 2006 Limited ('Standard Life'), which is a subsidiary in full ownership of Standard Life Plc, that is a Group Company of the Standard Life, UK. HDFC Life was established in the year 2000 maintaining the base of capital, a robust one having its commitments towards ESG principles and Corporate Governance in their vision as a responsible and ideal life insurer. The ESG philosophy and its critical role is analysed in this study as followed by HDFC Life.

Review of Literature

The most crucial topic for the companies in the present scenario is the environmental, social and governance factors i.e. ESG and Corporate Governance. The reviews related to Corporate Governance have highlighted the importance of good governance and the impacts of ESG on the profitability and value of the companies along with the revealing of the success of an insurance company.

Rajesh & Sachin (2022) The study evaluated the practices followed for environmental, social and governance factors in the Indian firms for the measurement of financial performance and concluded in their research that ESG results cannot be seen in short-term but in long term the major positive reflections can be seen in the financial performance.

Kumar, Kumari, & Kumar (2021) The research revealed the disclosure practices related to sustainability of the public companies and according to the study performed it was concluded that the reporting practices related to environmental, social and governance factors have been increased and the government companies are excelling in sustainability reporting in comparison to private sector companies.

Kuzey&Uyar (2017) The study revealed that the improved trend can be seen in the reporting of sustainability among the various chosen companies according to increased Global Reporting Initiatives.

Hasan, Hussainey, &Aly (2022) found in their study that the firms which have diverse gender boards along with the huge audit committees and higher institutional ownership publish more number of sustainability reports.

Garg, P. (2015) The study revealed that in the short run, the sustainability reporting practices does not impact the profitability of the companies in a positive way but the same can improve the performance of the companies in the long run.

Dr. Paramjit Kaur & Dr. Suveera Gill (2008) in their study stated how legal and regulatory framework of a country plays a pivot role in creating an effective Corporate Governance system, the overall development in the markets and the economic growth of the country. The study also reflects that in India, although very rigorous reforms are adopted for Corporate Governance, many major gaps can be seen in the implementation of the system of Corporate governance.

Goel, P (2018) The study shows that the Indian companies need to focus more on the implementation of good corporate governance strategies and take more innovative steps to improve the financial performance.

Research Gap

The previously done researches includes the analysis of Insurance Companies and their financial performance on the basis of the profits earned and claims settled by them. The few studies have also taken Corporate Social Responsibility(CSR) as a part of their research and some have taken into account the ESG in case of Banking industry like HDFC. The present study will focus on the role played by the ESG factors and Corporate Governance in case of HDFC Life Insurance Company as it is one of the leading Private Insurers in Life Insurance sector. Most of the researches performed on ESG reporting are of qualitative nature. This study is also evolving in the same field. It fills the research gap by figuring out the role played by the ESG factors and Corporate governance in the profitability and performance as a whole of the chosen company, i.e. HDFC Life Insurance.

Objectives

- To analyse the impact of activities performed by the company for their ESG policy on the profitability of the company
- To evaluate the risk and market share for the value of the company.

Hypothesis

- **Hypothesis 1:** ESG has positive and significant impact on Profitability
- **Hypothesis 2:** ESG has positive and significant impact on Value of the Company

Sample and Data Collection

For the purpose of this study the data is taken from the Annual Reports and ESG Reports of HDFC Life for the period of 3 years to analyse the impact of ESG Scores on the Profitability and Value of the Company. The period chosen is 2021-22,2022-23 and 2023-24.

ESG and Corporate Governance

At HDFC Life, the approach towards ESG Reporting has been designed using the structure or framework based on the ESG strategy. The ESG Reporting is done according to the Global Reporting Initiative (GRI) standards and SEBI Guidelines. The brand tagline of HDFC Life, 'Sar Utha ke Jiyo' is a reflection of its commitment towards the achievement of financial goals of the individuals and building a sustainable future by following the ESG standards. These standards include the 3 broad factors i.e.

- **Environment:** It is for building the sustainable future for our planet. Various activities are performed by the Company to reduce the carbon footprint through rationalisation of consumption and efficiently reducing, reusing and recycling the waste.
- **Social:** This factor is for the overall growth and development of the nation by the way of fulfilling the fair demands and needs of the employees and community as a whole. At HDFC Life, the fair ratio between male and female employees also shares the opportunistic and healthy workplace.
- **Governance:** The basic principles for the philosophy of Corporate Governance covers integrity, transparency and accountability. It plays a vital role in protecting the interests of the stakeholders and lead towards the sustainable value creation.

The 5 Pillars in the ESG Philosophy are:

- **P1-Ethical Conduct and Governance**

The value creation for all the stakeholders is done by adherence to highest standards concerned with ethical and sustainable business conduct. It is the part of Risk Management and Board Governance as included in the strategic pillar of company. The governance structure is designed as per the ESG issues persisting in the company so that better implementation could be done. In the organising committee, ED and CFO have given a policy for Environment and Climate change for managing the impacts on environment. The continuous efforts of the company aim for much better and enhanced ESG disclosures and practices.

- **P2-Diversity, Equity and Inclusion (DE&I)**

Diversity in the company means it is free from all forms of discrimination. In DE&I philosophy, a program named 'Celebrate You' have been constituted. Also various diverse recruitment programs, gender equality policies, etc. have become part of the philosophy.

- **P3-Sustainable Operation**

Sustainable Operation covers the contribution of the company towards framing of a better future for the people and planet, both by reducing the environmental footprints in their operations. The activities performed by HDFC Life includes decarbonisation, embracing digitisation for minimising wastes and adopting waste management techniques for sustainability. These continuing operations aim towards the reduction in Green House Gas (GHG) emissions by shifting to more renewable sources and follow better risk management procedures for incorporating Climate related risks.

- **P4-Responsible Investment**

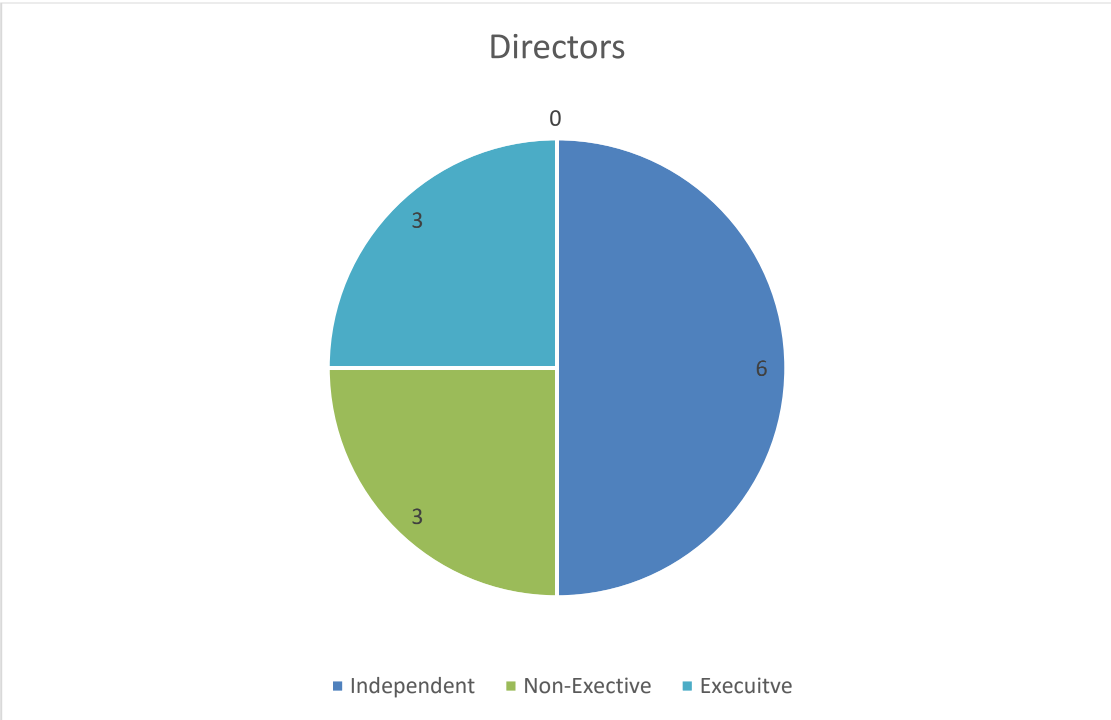
Investment decisions decide the returns over the long term. The consideration of ESG factors in their decisions for generation of optimal risk-adjusted returns is the objective of responsible investment. HDFC Life have also registered in the external ESG rating provider for top 250 companies by AUM. For improving the ESG risk management and business practices, the aim of the company is to enhance their involvement with the investee companies. The future goal is to increase adoption and reporting under Responsible Investment (RI) principles.

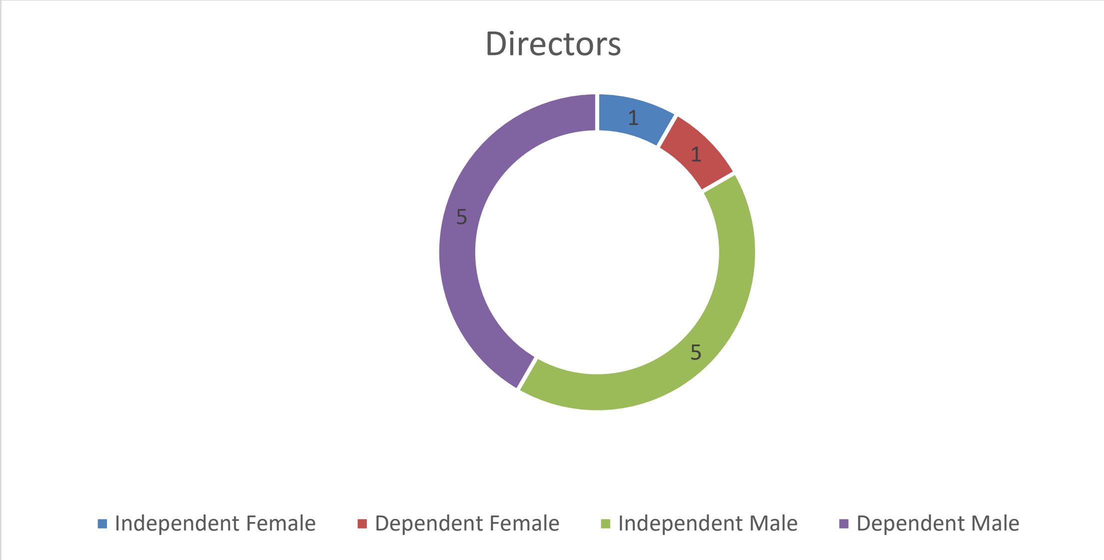
- **P5-Holistic Living**

The objective of this is creation of holistic and sustainable value for all the stakeholders. The CX transformation programme is initiated in the company to enhance the customer experience. Also, the Swabhimaan Programmes are aligned with the national agenda of HDFC Life and has launched several CSR activities for generating the maximum impact on the community or society via focus on education, healthcare, financial literacy awareness, etc. The aim for future is widening the implication on nation's agenda of financial inclusion through varied product designs and CSR programmes.

Corporate Governance

Embedded with the strategic pillars, the commitment to Governance Excellence is an ethical and strategic activity. The governance framework covers the principles based on integrity, transparency and accountability. Various Board Level Committees are designed like Audit, Risk management, Investment, Policyholders' protection, Corporate Social Responsibility and ESG, Stakeholder's relationship, Capital raising, etc. All these play a pivot role in taking actions related to regulatory changes. In addition to these committees the Company has also constituted an executive-level ESG Management Committee for looking into ESG matters and an ESG Governance Committee for integrating ESG issues into their investment decisions. If the Board composition is to be mentioned about, it has an optimal blend of independent, non-executive and executive directors along with the optimal male and female diversity. As on 31 March 2024, the composition comprises of





The various Board Committees in the Governance structure includes the following:

- Nomination and Remuneration Committee
- Corporate Social Responsibility and ESG Committee
- Stakeholders Relationship Committee
- With Profits Committee
- Audit Committee
- Risk Management Committee
- Investment Committee
- Policyholder Protection, Grievance Redressal and Claims Monitoring Committee

The other Committees are also the part of core Board committees like Whistle Blower Committee, Claims Review Committee, Grievance Management Committee, Product Management Committee and many more for the superior governance structure reflecting the efficient and effective performance of the Board.

Findings

The increased ESG activities by HDFC Life has shown the improved performance of the Company by way of an increase in the figures of profits and the value of shares for the respective years as taken in this study, the 3 Financial years are chosen to see the impact of the actions performed. The tables below show the Profits, Net Worth, ESG Ratings of 3 kinds and the Value of shares to reflect the Market value.

Table 1

Year	Profits(₹‘000)	Net Worth(₹’000)
2023-24	15,688,559	146,517,434
2022-23	13,601,263	129,868,061
2021-22	12,076,869	154,859,074

Source: Integrated Annual Reports of HDFC Life Insurance Company

Table 2

Year	Earning per Share (Basic)(₹)	Earning per Share (Diluted)(₹)	Book Value per Share (₹)
2023-24	7.30	7.29	68.17
2022-23	6.38	6.37	60.42
2021-22	5.91	5.90	73.30

Source: Integrated Annual Reports of HDFC Life Insurance Company

Table 3

Year	Individual Business		Group Business		Total Business	
	Risk Retained (%)	Risk Re-Insured (%)	Risk Retained (%)	Risk re-Insured (%)	Risk Retained (%)	Risk re-Insured (%)
2023-24	40	60	75	25	58	42
2022-23	37	63	81	19	60	40
2021-22	37	67	87	13	57	43

Source: Integrated Annual Reports of HDFC Life Insurance Company

Table 4

Year	Msci ESG ratings	Esg Risk Ratings	S&p Global ESG Score
2023-24	A	20.8	40/100
2022-23	BBB	19.5	49/100
2021-22	-	-	61 (From 1 in 2019)

Source: ESG Reports of HDFC Life Insurance Company

*MSCI ESG Ratings on the scale of AAA-CCC.

CCC	B	BB	BBB	A	AA	AAA

***ESG Risk Ratings Scale:**

NEGLIGIBLE 0-10	LOW 10-20	MEDIUM 20-30	HIGH 30-40	SEVERE 40+

*S&P Global ESG Score: ESG Score by CRISIL and separate scores for Environment, Social and Governance.

Conclusion

The reports reveal that the company is constantly increasing its graph in terms of the activities performed by it as far as ESG factors are concerned. The steps taken by it includes the increased frequency of meetings of CSR &ESG Committees like previously in 2022-23, Board oversight was implemented for ESG and in 2023-24, the CSR &ESG Committees met biannually. Also, the responsible ED & CFO aims for the efficient management environmental implications and take necessary actions towards guiding the employees. The diversity and equity objective is fulfilled by the company as HDFC Life has been ranked as the Best Organisation for Women 2024 by Economic Times since the employee force of women accounts for 26.9% of the total. Along with this, Avtar has ranked HDFC Life in top 100 Best Companies for Women in India, 2023 and Seramount has also termed it is as an Exemplary of Inclusion 2023. The awards do not come to end as Asia's Best Workplaces by 'Great Place to Work' and India's Best Workplaces for Millennials 2023 have also been awarded to HDFC Life. The Environmental sustainability is the key factor of ESG and CSR. So, in the study, it is observed that out of 17 SDGs, 12 have been covered till 2021-22 and from 2022-23 till date, 14 SDGs are covered. Also, the recycling of wastes promoted its circulatory within the operations as 5.3 tonnes of E-Waste, 6.5 tonnes of Paper Waste and 0.1 tonnes of Plastic Waste are disposed off till 2023-24. New purifiers have been installed which replaced the old water bottles maintaining the water consumption at 4,62,793.28 kilolitres. Being a responsible investor, HDFC Life's 'Sustainability Equity Fund' has grown by more than 50%. It has also prepared its first UN PRI Report in the financial year 2022-23. It became capable to attract 33 investee companies due to integration of ESG factors in their work operations and subscribed for an External ESG rating for top 250 companies by Asset Under Management (AMU). This study has revealed that HDFC Life has the top ranking in Customer Experience NPS Study among the industry peers as conducted by Kantar and has achieved 90.9% Score in the Financial Year 2023-24 in the survey of Customer Satisfaction. The number of insured Rural lives and Social lives have increased to 2,75,475 and 74,86,026. By the Swabhimaan Programme also, 29 programmes have benefitted the 16.32 lakhs individuals and successfully achieving 14 SDGs out of 17. Hence, by maintaining an active, positive and relevant Internal Control System (ICS) and Governance structure, HDFC Life has achieved sustainable growth with the enhancement of value to all its stakeholders.

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GREEN TECHNOLOGY

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ABSTRACT

Green tech is an umbrella term that encapsulates any technology that is created to be environmentally friendly from its production line all the way to its usage. It is a continuously evolving form of technology which aims to be less taxing to the natural resources as humans are consuming the resources faster than it can be replenished. The major goal of green technology is to help control climate change, protect the natural environment, reduce our dependence on Non-Renewable resources such as fossil fuel, and heal the damage done to the environment. Few sectors that are actively investing in this technology are Transportation, Energy, Waste Management Sectors. While there are many advantages of using this technology, it needs to cross some hurdles before it can become a new normal. Over the years' green technology has become one of the employment sectors with the fastest growth. Day after day it is getting more obvious that we need to invest more in green solutions for the survival of mankind and the necessity of green tech lies in reducing the risks posed to the environment and in conserving natural resources. As discussed in this paper, even if we have now emerging technologies for reducing emissions are available for implementation, including wind power, improved solar cells, and electric vehicles, we still need to deal with the issue of technology transfer as the developing countries produce majority of the world's pollution, particularly CO2 and other greenhouse gases due to the careless environmental policy implemented.

***KEYWORDS**: Green Technology, Natural Resources, Employment Sectors, Emerging Technologies.*

Introduction

In today's world, technology is utilized across a variety of applications, techniques, and skills. Technology is aimed at achieving specific goals such as scientific research or investigations. When a technology is produced, supplied, or used in a way that is beneficial to the environment, it is known as Green technology. The term Green technology refers to the ongoing development of products and systems that impose less strain on the natural environment and its resources, thereby reducing the adverse impacts of human activities. We inhabit a world with a finite supply of natural resources, specifically Non-Renewable resources, which can be exhausted over time. Human activities have led to significant depletion of many of these resources from the planet. According to the Global Footprint Network, human consumption of natural resources exceeds the Earth's ability to replenish them by 1.7% Therefore, the need is that we as a responsibility should invest in Green technology as they are:

- Less taxing to the natural environment thus reduces the resources depletion.
- Emission of greenhouse gases (GHG) (CO_2, CH_4, N_2O) is considerably less
- Usage of renewable resources (wind, solar) is encouraged.

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What is Green technology?

Green technology focuses on combating climate change, safeguarding the natural environment, and decreasing human reliance on non-renewable resources, while also addressing the damage caused to our ecosystems. The green technology market began to expand notably as manufacturers sought to reduce their negative environmental impacts by altering their manufacturing processes in the early 19th century. By the 1990s, green innovation had not yet developed into a recognized business sector. However, a UN report released in 2018 indicated that the global total investment in renewable energy and green technology initiatives surpassed $200 billion in 2017, with $2.9 trillion invested in renewables like solar and wind power since 2004. According to the UN, China emerged as the top global investor in this sector, contributing around $126 billion in 2017.

Sectors Using Green technology

- **Energy Sector:** At present, fossil fuels are the primary source of energy generation. We can utilize green technology to create alternative and more environmentally friendly fuel sources compared to fossil fuels. The production of fossil fuels generates waste by-products. Cleaner alternatives to fossil fuels include solar, wind, and hydroelectric power, as these are more eco-friendly and do not create harmful by-products.
- **Transportation Sector:** Automobiles are major contributors to global greenhouse gas emissions, particularly those that rely on conventional fuels. As a result, numerous automotive manufacturers are making efforts to develop electric vehicles and compressed natural gas (CNG) buses.
- **Waste Management Sector:** Eco-friendly technology is employed in the waste management industry for the transportation, storage, and recycling of waste materials.
- **Water Filtration:** Green era is being extensively used for water purification. Countries round the sector wherein water deliver is limited, inexperienced era can be used for purifying polluted water or extracting salt from seawater to enhance the deliver of secure ingesting water.
- **Air Purification:** Polluted air may be purifies via way of means of lowering the carbon emissions and gases launched from the commercial sectors the usage of Green technology.

Advantages of Green Technology and Challenges

- Helps in recycling and managing waste materials.
- It is environmentally friendly as a result emit zero or less harmful materials in the environment
- Maintaining the Green technology is very cost efficient.
- Green technology helps conserve energy
- It is also helping in rejuvenating the health of our ecosystem.

While there are numerous benefits to using Green era and additionally many hurdles within side the manner of Green era that first want to be cleared. Civilization grew in large part relying at the fossil gas as our fundamental power source. Around 90% of our power desires is fulfilled via way of means of burning fossil fuels. The shift from the usage of cheap, power dense and abundantly to be had fossil gas in the direction of environmentally pleasant inexperienced era will simply show to be a prime hurdle to cross. Widespread utilization of wind and solar power could simply assist us to transport far from counting on fossil fuels, however the growth of wind and sun technology will show to be a hard venture due to the truth that the solar does now no longer usually shine and wind does now no longer usually blow. This unreliability may be solved via way of means of storing the power generated and the usage of while it's far needed. Few of those inexperienced technology additionally cannot be everywhere consisting of tidal power can handiest be applied at some point of excessive tides, geothermal power can handiest be applied in a geologically volatile place. We may also require new transmission traces to go back and forth present power across the strength grid and to deliver wind and sun power generated with inside the prairies and deserts to towns and towns where it`s needed. Although there exist few hurdles in the manner of Green Technology however in the end the use of inexperienced era might be really well worth the more mile, we are able to installed it

The Case of Electric Vehicles

Electric automobiles green alternative over traditional automobiles. In phrases of air pollutants and greenhouse fuel line emissions Electric vehicles and vans are proving to be even cleanser than the maximum green conventional automobiles from renewable energy is locate to rate EVs exclusively to be proven to be absolutely emission free. While it's far genuine that no GHG emissions come at once from EVs however they run on energy which continues to be predominantly derived from fossil fuels in maximum elements of the arena. Energy is likewise used to fabricate the car and the battery in particular. There are many research being posted displaying that the carbon footprint of an EV is similar to traditional automobiles however the trouble with that facts is it consists of the carbon emissions of energy flora that produce the energy the usage of fossil fuels. That equal argument, however, may be implemented for traditional vehicles, taking into consideration the quantity of carbon emissions produced for the duration of the drilling and refining of crude oil. The blessings of EVs are smaller in nations with coal-in depth energy generation. However, as the arena is shifting toward decarbonizing energy generation, using emissions for present EVs will fall significantly and output emissions for brand spanking new EVs may also decline. Most of the preservation price is likewise removed because the shifting elements in an EV could be very less. In 2019, a Nissan Leaf EV`s lifetime emissions in line with kilometer have been discovered to be approximately 3 instances decrease than the common traditional automobile. However, it's far hard and complicated to attract a assessment among the traditional car and electric powered car because the assessment in large part relies upon on the dimensions of the vehicles, the precision of the calculations used for fuel-economy, how emissions are measured, what using behavior are presumed, or even the situations in areas in which the vehicles are being used. No unmarried estimation applies everywhere. There is likewise big uncertainty approximately the pollutants related with the production of EV batteries, with various research reporting hugely different figures. As battery charges fall and car manufacturers hold to supply large batteries with longer using ranges, emissions from battery production could have a extra impact at the environmental blessings of EVs. Around 1/2 of of the battery output emissions come from the power used withinside the processing and set up of the batteries. Manufacturing of batteries in areas with rather low carbon energy or in renewable power-powered flora together with Tesla`s Gig manufacturing facility in USA could significantly assist in lowering battery pollutants. Electric automobiles emissions basically come from the manufacturing and distribution of the energy being used. According to an Australian study. A petrol pushed automobile generated 355 grams of CO_2 in line with km pushed and electric powered car charged the usage of a median energy grid produced round 40% less CO_2 emissions at 213 grams in line with kilometer which proved that even with the grimy grid energy EVs show to be

Need of Green technology

Green era number one intention is to manipulate international warming and decrease the greenhouse effect. The foremost idea is to increase revolutionary innovations that don't have an effect on the herbal resources. It will bring about much less harm to humans, animals and our planet`s universal health. Now it's far apparent that our global is starting to suffocate from all of the waste that we produce. But if there may be a will, then there may be a manner to make this hassle a whole lot smaller. The hit use of inexperienced technology has decreasing emissions. Hence many advanced and a few growing international locations at the moment are transitioning toward this shape of era to assist guard them from dangerous influences at the climate. Pollution issues are old, inexperienced era, however, is a particularly new idea. We are absolutely destroying our global for this reason human beings have started to recognize the want of inexperienced era. Green era has come to be one of the employment sectors with the quickest boom. And due to the fact defensive our global has come to be important, inexperienced era is really a ways extra than a fashion a good way to quickly pass. The necessity of inexperienced era is obvious through the truth that pollutants kills over nine million human beings yearly. Broadly speaking, the need of inexperienced era lies in decreasing the dangers posed to the surroundings and in protecting herbal resources. This might additionally make certain that clean, renewable strength reassets are used to save you the opposite non-renewable reassets from being completely depleted. Modern sun roof tiles are one-of-a-kind from the conventional sun structures presently available. According to the CEO, Elon Musk, those tiles produce strength, are cost-powerful in sales, higher insulated and feature an extended life. Temperature upward push combines with intensified greenhouse effects. Hazardous influences of this encompass smog emissions, ozone depletion, ocean acidification, and plant boom changes. With the assist of inexperienced era, climate change can be reduced because it faucets into destiny new strength production methods and rising carbon consumption.

The opportunity reassets of power is inexperienced generation which do now no longer have an effect on crucial fossil fuels. It`s additionally crucial to fight international warming through decreasing greenhouse fueloline emissions which includes nitrogen and carbon dioxide. Greenhouse impact may be decreased and faces the demanding situations of world warming through the use of a number of the bureaucracy inexperienced generation encompass harnessing sun power, gasoline cells, wind power and geothermal power. In addition to those renewable power reassets, inexperienced generation additionally gives strategies which includes battery storage, inexperienced constructing, and metal foams. The use of inexperienced generation is already very significant throughout the globe and is constantly growing. Green generation sure generation and recyclable additives together. Such an initiative facilitates to foster an surroundings freed from pollutants that can preserve life. For instance Green computer systems are being made. Now a days modern computer systems are in large part fabricated from cadmium, lead, plastics and brominated hearthplace retardants and may all be indexed as environmentally harmful. Green generation works to fabricate computer systems which can be fabricated from secure components for disposal. Throughout the development enterprise, inexperienced generation is likewise gambling a function through incorporating sustainable features. This new function facilitates the constructing enterprise enhance the fee of the assets through making it environmentally friendly. Geothermal installations can be expensive, but they use nearly 50% less strength than standard systems. Geothermal pumps additionally limit emissions of carbon dioxide through 70%. This lowers power costs and, on the equal time, preserves the earth through protecting her herbal assets. Simply put, inexperienced generation is proving to be critical for our destiny survival. An unsightly photo this is painted through the results of pollutants and weather extrade provide upward push to the want and significance for such smooth technologies. Green generation additionally affords opportunity reassets of power, helps biologically degradable goods, encourages recycling, and promotes sustainable constructing growth. This additionally leads significantly to emissions reduction, decline in international warming and herbal assets conservation.

Green Technology Transfer

Wind Power, Solar cells and electric powered automobiles are to be had rising technology for decreasing emissions, the brand new project is era switch. Generally, a growing economic system usa seeks to get superior technology invented and patented via way of means of multinationals commonly from evolved nations with the intention to preserve their developing economies balanced. However new and rising technology convey excessive value which mirror the studies and improvement that went right into a era which can be commonly better than the growing usa can pay. Technology switch is while excessive-tech gadget is bodily transported to some other usa via way of means of global trade. The Trade and Development (UNCTAD) UN Conference has drafted the International Code at the Transfer of Technology, (ICTT). The technique of Technology Transfer is performed via way of means of push and pull elements. One aspect pulls a era right into a growing marketplace and the alternative aspect pushes the era farfar from the evolved marketplace. Market-primarily based totally pull elements preserve to take that era into markets in which adequate era call for and good enough monetary assets are to be had to attract era proprietors to fulfill call for. Technology switch is a manner technique. Both the deliver and call for elements are alleged to be taken into consideration In order to inspire the switch of inexperienced technology from business economies to the growing nations. On the deliver side, buyers and businesspeople worried in era switch call for a appropriate in addition to permitting surroundings withinside the recipient marketplace, mainly the capability and infrastructure to aid manufacturing and management, and the guidelines that sell greater inexperienced era boom. While at the call for side, neighborhood call for (pull elements) should arise for the powerful adoption of inexperienced Technologies. Also, growing nations should sell the switch of inexperienced era through the improvement of technological capability and institutional systems to permit the transferred additives and structures to be absorbed, tailored and stronger in the event that they need to undertake sustainable inexperienced era. Because of the fast boom and modernization of growing nations it's miles clean that the era switch is important. Largest economies like China, Brazil and India the bulk of generation switch is taking area. Although it isn't always absolutely one directional. It is taking area inside and throughout the advanced and growing international locations in lots of ways. The maximum not unusualplace transition technique is the honest buy and sale. In addition, in-licensing and out-licensing agreements regarding new improvements and associated understanding in addition to growing greater superior mechanisms to build, circulate and use generation additionally exists. However, there are a few boundaries consisting of monetary barrier, which incorporates price lists and different change blocks, any other one is the social barrier to generation adoption. While the monetary boundaries save you a advanced generation from being imported even as social boundaries save you vast adoption of generation due to the fact it's far overseas or towards societal norms.

Conclusion

Pollution might also additionally motive collapsed our planet because of bad environmental externalities. We should go each barrier and should preserve to innovate in inexperienced generation. People have become an increasing number of aware about the environmental destruction so marketplace of inexperienced generation is at the all-time high. This cognizance is pushing the marketplace to introduce new and stepped forward inexperienced technologynologies. The upward push of Electric Vehicles and its call for is the stay instance of that call for. Because of the Paris Agreement many governments also are shopping for the inexperienced generation increasingly. For groups being inexperienced is turning into a main possibility in appeasing the group consequently they're shopping for inexperienced generation so they may be perceived because the supporter of environmental sustainability. All in all, it's miles a win for the environment. Green generation innovations are being increasingly implemented and getting more and more stepped forward and environmentally friendly.

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BOON OR BANE FOR TAXPAYER TO HOLD LONG TERM CAPITAL ASSETS IN THE CONTEXT OF BUDGET, 2024

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ABSTRACT

*The Budget, 2024-2025 has proposed several significant amendments or reforms with an objective of simplifying the tax structure with a view of promoting economic development. Inclusive Growth, Developing Skill, Infrastructure development & MSME Sector are the key highlights of the full budget. Under the section "**Simplification and Rationalisation of Tax" of the Union Budget Speech**, 2024, the budget has proposed the provisions of removal of indexation benefits with effect from 23rd July, 2024. Indexation benefits are a strategic mechanism that provides relief to taxpayers holding long term capital assets since it adjusts the cost of acquisition based on inflation. This research paper discusses the effect of withdrawal of indexation benefits on the tax liability of taxpayers and under what circumstances does the absence or presence of indexation prove advantageous, considering different situations.*

***KEYWORDS**: Budget Proposals, Tax Liability, Indexation Benefit, Indexation Removal.*

Introduction

A**s we know that every year the Union Government presents the Budget in the Parliament through the Finance Minister. The Current Finance Minister of India is ***Ms. Nirmala Sitaraman who presented the seventh consecutive union budgets and made history in India's Context. In this year, the full budget has been presented on 23rd July, 2024. A budget is an estimated statement of income, which will be received from different sources of receipts and expenditure which will be expended for a predetermined sector in the fiscal year. This Budget has focused on Employment, Skilling, MSME and Middle Class. The Finance Minister outlined a detailed roadmap, for achieving "***Viksit Bharat- a Vision***" as envisaged in the interim budget, by stating **9** priorities in this full budget which are as follows:

- Productivity and resilience in Agriculture
- Employment & Skilling
- Inclusive Human Resource Development and Social Justice
- Manufacturing & Services
- Urban Development
- Energy Security
- Infrastructure
- Innovation, Research & Development and
- Next Generation Reforms.

In terms of taxpayers perspective, the Budget plays a pivotal role in driving the tax liability which they are likely to pay on total income. ***The Income Tax Act, 1961*** does not have any reference to rates of income tax. An assessee's income for a given previous year is subject to tax in the subsequent assessment year based on the tax rates prescribed in the relevant Finance Act for that assessment year. The Income Tax Act, 1961 has specific provisions for taxing special income at special rates of tax, such as Long Term Capital Gains etc.

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Budget Proposals

The Finance (No.2) Act, 2024 has introduced many amendments in Direct tax and Indirect taxes. But the key amendment in Direct Taxation which has drawn everyone's attention, is that ***With effect from 23rd July, 2024***, an assessee who transfers long term capital assets- Financial or Non-Financial Assets shall have to pay tax @ 12.5% instead of 20% / 10% under section 112 / 112A of the Income Tax Act, 1961 respectively but will not get indexation benefit under section 48 of the aforesaid Act for inflation effect in cost of acquisition while computing long term capital gains.

Let's look into the **rationale of the amendment** proposed in taxation of capital gains, from the Budget Speech, 2024-2025:

"**The taxation of capital gains is proposed to be rationalised and simplified.**

- Short term gains on specified financial assets shall henceforth attract a tax rate of 20 per cent instead of 15 per cent, while that on all other financial assets and non-financial assets shall continue to attract the applicable tax rate.
- Long term gains on all financial and non-financial assets, on the other hand, will attract a tax rate of 12.5 per cent. For the benefit of the lower and middle-income classes, it is proposed to increase the limit of exemption of capital gains on certain listed financial assets from ₹ 1 lakh to ₹ 1.25 lakh per year.
- Listed financial assets held for more than a year will be classified as long term, while unlisted financial assets and all non-financial assets will have to be held for at least two years to be classified as long-term.
- Unlisted bonds and debentures, debt mutual funds and market linked debentures, irrespective of holding period, however, will attract tax on capital gains at applicable rates.
- These proposals are proposed to be given effect with immediate force."

Capital Gains Tax Rate in Major Countries

Every Country has its own capital gain tax structure depending upon the economic goals, revenue requirements, international agreements & competitiveness etc. Developed Countries charge higher tax rate on capital gains in comparison to developing countries. Higher tax rates can reduce economic instability by taxing capital gains which tend to benefit moneyed people. The following table offers a snapshot of LTCG tax rates in major countries that attract Indian investment, enabling investors to make informed decisions:

S. N.	Major Country	LTCG Tax Rate on Immovable Property
1	France	19% Capital Gain Tax Rate + 17.2% Social Charges (Depending on the Holding Period of Property: Exemptions after 22 years for Capital Gains Tax Rate and 30 years for Social Charges)
2	Japan	20% (15% Tax Rate + 5% resident tax) for Properties Held over 5 years.
3	Denmark	27% up to a Certain Threshold, 42% Beyond that
4	United Kingdom	Capital Gains Tax (CGT) Rate on Residential Property is typically 28% for Higher-rate Taxpayers and 18% for Basic-rate Taxpayers.
5	Brazil	15% to 22.5%, Depending on the Gain Amount
6	USA	Varies by Income, Generally 0%, 15%, or 20%
7	India	12.50%
8	China	20%
9	Germany	26.375% (Including Solidarity Surcharge) if Property Held for Less Than 10 years
10	Israel	25%
11	Norway	22%
12	Austria	27.50%
13	Spain	19% - 26%, Depending on the Gain Amount from Property Sales.
14	Canada	50% of the Capital Gain is Taxable at the Individual's Income Tax Rate on Immovable Property.
15	Uganda	30%

Source: Internet

If we compare India's long term capital gain (LTCG) tax rate with countries listed in the above table, it can be seen that India charges the minimal tax on long term capital gains.

There are also a few countries which do not levy any tax on LTCG such as Bahrain, Barbados, Belize, The Cayman Islands, United Arab Emirates, Switzerland, New Zealand, Sri Lanka, Singapore etc.

Effect of Removing Indexation Benefit on the Taxpayer's Tax Liability

Inflation steadily erodes the purchasing power of money, making it essential to account for its impact when calculating long term capital gains. To provide relief to taxpayers, the indexation method is used to adjust the cost of acquisition of a capital asset on account of inflation. This adjustment ensures that the capital gains calculation reflects the asset's true value appreciation over time rather than just its purchase value of property. Section 48 of the Income Tax Act, 1961, provides the method of indexation for computing the indexed cost of acquisition. This helps taxpayers to reduce their tax liability on long term capital gains by factoring in the effects of inflation." **Budget 2024-2025** has concerned many taxpayers because of **removal of indexation benefits** on long term capital assets. Now, the question in the minds of taxpayers is "How would the removal of indexation affect their tax liability?"

Let's understand with the help of illustrations:

Table 1

Particulars	Property- 1	Property - 2	Property - 3	Property- 4
Date of Acquisition	21-09-2003	7-8-2008	1-12-2013	15-01-2018
Relevant Previous Year	2003-2004	2008-2009	2013-2014	2017-2018
Cost of Acquisition	8,00,000	35,00,000	68,00,000	100,00,000
Cost Inflation Index of Year's Acquisition	109	137	220	272
Date of Transfer	28-7-2024	19-08-2024	15-12-2024	25-02-2025
Previous Year of Transfer	2024-2025	2024-2025	2024-2025	2024-2025
Sales Considerations	41,00,000	1,60,00,000	2,10,00,000	2,35,00,000
Cost Inflation Index of Year's Transfer	363	363	363	363
Indexed Cost of Acquisition	26,64,220	92,73,723	1,12,20,000	1,33,45,588
Long Term Capital Gains with Indexation	14,35,780	67,26,277	97,80,000	1,01,54,412
Long Term Capital Gain without Indexation	33,00,000	1,25,00,000	1,42,00,000	1,35,00,000
Tax on LTCG @ 20% with Indexation (Preference 1)	2,87,156	13,45,255	19,56,000	20,30,882
Tax on LTCG @ 12.5% without Indexation (Preference 2)	4,12,500	15,62,500	17,75,000	16,87,500
Better Option for Taxpayer	Preference 1	Preference 1	Preference 2	Preference 2
Saving in Tax Liability	1,25,344	2,17,245	1,81,000	3,43,382

Conclusion

The absence (without benefit) or presence (with benefit) of indexation can have a significant impact on tax liability, depending on various circumstances such as holding period, rate of return and indexation factor. As these circumstances play crucial roles in analyzing the benefits of ***with or without indexation*** for taxpayers.

- **Rate of Return**: The rate of return represents the annual growth rate of an investment over a specified period. It helps in understanding the profitability of an investment. When analyzing the benefits of indexation, the rate of return helps in comparing the actual gains from the investment against the inflation-adjusted gains.
- **Indexation Factor**: The indexation factor is used to adjust the purchase price of an asset for inflation. This adjustment helps in reducing the taxable capital gains by accounting for the inflationary increase in the asset's value. The indexation factor is typically derived from a government-published index, such as the Cost Inflation Index (CII) in India.

Table 2

Property	Holding Period of Property	Rate of Return	Indexation Factor	LTCG Tax with Indexation @20% (Refer Table 1.0)	LTCG Tax without Indexation @12.5% (Refer Table 1.0)	Better Option for Taxpayer
1	21 Years	8.09%	3.33	2,87,156	4,12,500	With Indexation
2	16 Years	9.97%	2.65	13,45,255	15,62500	With Indexation
3	11 Years	10.80%	1.65	19,56,000	17,75,000	Without Indexation
4	7 Years	12.98%	1.33	20,30,882	16,87,500	Without Indexation

Note:

- Indexation Factor is calculated as Cost Inflation Index at the time of Sale divided by Cost Inflation Index at the time of Purchase.

Rate of Return is calculated with the help of this formula = $r = \left(\frac{\text{Future Value}}{\text{Present Value}}\right)^{\frac{1}{n}} - 1$

Analysis of Each Property

Property Held for a Short Period with Low Inflation (Property 4)

- **Scenario**: Property 4 was held for a short period (7 years since 2018) with a high rate of return (12.98%). The indexation factor of 1.33 reflects a relatively low inflation adjustment.
- **Key Point**: The minimal inflation adjustment means that indexation doesn't provide a significant benefit. The tax liability without indexation is ₹16,87,500, compared to ₹20,30,882 with indexation.
- **Conclusion**: Without indexation is more advantageous. Due to the high rate of return and low indexation factor (1.33), applying indexation increases the tax liability. Since property value growth has significantly outpaced inflation, opting for no indexation minimizes the tax liability.

Property with Significant Holding Period and Inflation (Property 1)

- **Scenario**: Property 1, acquired in 2003, was held for 21 years with a moderate rate of return (8.09%). The indexation factor of 3.33 reflects substantial inflation over this period.
- **Key Point:** The long holding period allows indexation to significantly reduce taxable gains. With indexation, the tax liability is ₹2,87,156, compared to ₹4,12,500 without indexation, saving ₹1,25,344.
- **Conclusion**: Indexation is beneficial. The high indexation factor (3.33) effectively adjusts the cost of acquisition for inflation, reducing the taxable gain significantly. For long-term holdings with moderate returns, indexation substantially lowers the overall tax burden.

Property with Moderate Holding Period and Significant Inflation (Property 2)

- **Scenario**: Property 2, acquired in 2008, was held for 16 years, with a rate of return of 9.97%. The indexation factor of 2.65 reflects moderate inflation during this period.
- **Key Point**: The moderate holding period and decent rate of return make indexation beneficial. The tax liability with indexation is ₹13,45,255, compared to ₹15,62,500 without indexation, saving ₹2,17,245.
- **Conclusion**: Indexation is advantageous. With an indexation factor of 2.65, the inflation adjustment sufficiently reduces the taxable capital gain. The property's value growth didn't drastically outpace inflation, so applying indexation provides meaningful tax savings.

When Property Value Growth Outpaces Inflation (Property 3)

- **Scenario**: Property 3, acquired in 2013, was held for 11 years, experiencing a high rate of return (10.80%) and moderate inflation. The indexation factor is 1.65, indicating a moderate inflation adjustment.
- **Key Point**: With a high rate of return, the property's value growth exceeds inflation. Without indexation, the tax liability is ₹17,75,000, compared to ₹19,56,000 with indexation, saving ₹1,81,000.
- **Conclusion**: Without indexation is more favorable. The lower indexation factor (1.65) doesn't provide enough benefit to justify applying indexation. The rapid appreciation of property outpaced inflation, making the absence of indexation more beneficial.

Factors / Circumstances when *Indexation* is Beneficial

- **Long-term holdings**: For properties held for more than 10 years, where inflation adjustments reduce the tax burden.
- **Moderate growth properties**: When property value rises slowly, indexation can significantly lower taxable gains.
- **High inflation environments**: Indexation shields us from paying excessive tax in times of rising inflation.

- **Generational wealth:** If properties are passed down over time, indexation benefits those holding for decades.
- **Stable, low-growth markets**: Indexation offers the most benefit where property values grow slowly compared to inflation

Factors / Circumstances when *Without Indexation* is Beneficial

- **Short holding periods**: Properties held for under 10 years where inflation hasn't impacted the value much.
- **Fast-growing markets:** Where the property value increases rapidly, indexation becomes less effective.
- **Low inflation**: If inflation is minimal, indexation offers little value in reducing taxable gains.
- **High-return, short-term investments**: For investors looking for quick profits, non-indexation usually results in lower taxes.

Rationale Behind the Indian Government's Move to Remove the Indexation Benefit

Indexation is the process by which a government adjusts its tax rates and policies to account for changes in inflation, ensuring that taxpayers are not unfairly taxed on nominal gains rather than real growth. Every step taken by the Government is in the interest of the nation with the objective of growth, development and prosperity to boost the economy. In any nation, the major source of revenue for the government comes from taxation. Every government, whether a developed or developing nation, decides tax structure after taking into account many factors such as foreign investment, job opportunities and investment in the infrastructure sector etc. In this budget, the step of removing indexation benefits shall affect the taxpayer, especially middle class people as he would prefer to invest in short term capital assets but as we said earlier, every step is always for the nation's benefit. In this paragraph, we will discuss "What is the rationality of the withdrawal of indexation benefits by the Government of India via the Finance Bill (No. 2), 2024. We can better understand the rationalisation of removal of indexation benefits with the help of following points:

- **Revenue Generation**

The step of withdrawal of indexation benefit from long term capital assets will generate more revenue to the Indian Government. Ultimately, the revenue is to be used in the social welfare projects, infrastructure development and other government schemes or initiatives.

- **Tax Administration**

Every year, the Government of India notifies the Cost inflation index (CII) for the previous year via gazetted notification, for calculation of indexed cost of acquisition and indexed cost of improvement. By removing indexation, there is no such need to notify.

- **Global Standards**

There are many countries such as the United States, Canada etc. which do not have any indexation regime. This move of the Indian government will deal out India's long term capital gains tax system with global standards.

- **Encourage Investment in Other Assets**

The removal of indexation benefits boosts market liquidity by encouraging diversification. Traditionally, long-term real estate investments tied up funds. This change frees up capital, stimulating market activity and economic growth. Investors now explore financial and non-financial assets, promoting short-term investments and a more dynamic market.

- **Inflation Control**

Removing indexation benefits can help in controlling inflation by reducing disposable income and consumption, increasing tax revenue to reduce fiscal deficit, and discouraging investment in assets like real estate and gold, which can drive up prices. This move can also encourage investment in productive sectors, increasing supply and helping to curb demand-driven inflation.

Consequences of Indexation Removal

Every decision has its pros and cons. The Budget, 2024-2025 has sparked a debate among investors regarding the removal of indexation benefits on long-term capital gains. This change has significant implications for taxpayers.

- **Tax Burden**: The foremost argument which criticises the Government's decisions, is that the removal of indexation will increase the tax burden on the taxpayers, especially those who have held for extended periods.
- **Less Investment in Property**: By removing indexation benefits, it may discourage investment in real estate property which can slow down the sector's growth and have a direct impact on economic activity.
- **Middle Class Taxpayer**: Everyone invests in property with the aim of getting more returns and for middle class people, the investment in property acts as financial security. The decision of withdrawal of indexation benefits can lead to higher tax liability for these taxpayers and imbalance their savings criteria as well.
- **Contradiction between Government's Objectives:** The withdrawal decision of indexation may discourage the taxpayer to invest in long term investment due to higher tax liability burden. If tax liability is more, it would be difficult for them to make savings. Thus, the decision is contradictory between Government's Objectives.
- **Liquidity Concern**: The decision of withdrawal of indexation benefits may reduce liquidity in the real estate market, making it harder to buy and sell assets.

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EVALUATING THE IMPACT OF 'MAKE IN INDIA' ON EMPLOYMENT AND GVA: THE ROLE OF CAPITAL INTENSITY AS A PROXY FOR TECHNOLOGICAL INNOVATION IN DAIRY MANUFACTURING

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ABSTRACT

This paper investigates the impact of the "Make in India" initiative on employment in the dairy product manufacturing sector in India. Using panel data from the Annual Survey of Industries (ASI) spanning from 1980 to 2021, we focus on states that received substantial investments under the initiative, namely Maharashtra, Gujarat, Karnataka, Tamil Nadu, and Uttar Pradesh. A random effects model is employed to analyse the relationship between the initiative and employment in dairy manufacturing, with a specific interaction term created between a time dummy (post-2014) and the treatment states. Our findings indicate that the "Make in India" initiative has led to a significant increase in employment within these states, particularly in the post-2014 period. These results provide valuable insights into the effectiveness of the initiative in stimulating employment in the dairy manufacturing sector, offering policy recommendations for enhancing the initiative's impact on employment growth.

***KEYWORDS**: Capital Intensity, Make in India, Wages, Dairy Products.*

Introduction

The launch of 'Make in India in 2014 sought to foster industrial growth, innovation, and employment in India, and its impact on sectors like dairy manufacturing, which plays a crucial role in the economy, remains an important area of research. This ambitious initiative sought to boost the manufacturing sector, create employment opportunities, increase the contribution of manufacturing to GDP, and improve India's position in global supply chains. The dairy industry, being one of the largest and most important sectors in India's manufacturing economy, stands as a significant component of the program. Dairy products have a profound socio-economic impact, as India is the world's largest producer and consumer of milk (National Dairy Development Board, 2020). The sector, however, faces several challenges related to productivity, employment, and value-added growth, which the Make in India initiative aims to address.

The manufacturing of dairy products plays a pivotal role in the national economy, contributing substantially to both employment generation and Gross Value Added (GVA) in India. The Annual Survey of Industries (ASI) provides detailed data on the performance of industries across states, offering crucial insights into the growth of the manufacturing sector. Employment in the dairy sector has been historically dominated by small-scale and unorganized producers, and as such, the introduction of Make in India was expected to lead to an expansion of formal employment and improvements in productivity and GVA within the sector (Patel et al., 2016).

Several studies have highlighted the importance of manufacturing and its potential to create employment and contribute to economic growth. For instance, Kaur and Jain (2019) noted that the Make in India initiative has had a positive impact on industrial employment, particularly in sectors such as food

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processing, textiles, and automobiles. However, the impact on specific sub-sectors, such as dairy product manufacturing, remains underexplored. This is especially pertinent at the state level, where regional variations in employment patterns and economic growth can offer a nuanced understanding of the initiative's success. According to a report by the India Brand Equity Foundation (IBEF), states such as Uttar Pradesh, Punjab, and Haryana have traditionally been the major producers of dairy products, contributing significantly to the overall dairy output in India (IBEF, 2021).

This study aims to fill the gap in the literature by analysing the impact of the "Make in India" initiative on employment and GVA in the dairy manufacturing sector, using state wise data from the Annual Survey of Industries (ASI). By examining how the initiative has influenced the growth of dairy manufacturing and its effect on state-level employment and GVA, the study will contribute to a deeper understanding of how "Make in India" has impacted regional economic development, particularly in the dairy sector. The study also seeks to explore how regional differences in industrialization and dairy production have influenced the outcomes of the initiative, providing valuable insights for policymakers aiming to strengthen the sector further.

Literature Review

The launch of the Make in India initiative has been widely discussed in both academic and policy circles as an attempt to promote industrial growth, enhance employment, and improve the overall competitiveness of Indian manufacturing. The dairy manufacturing sector, a critical component of India's economy, plays a significant role in this context, especially since India is the largest producer and consumer of milk globally (NDDB, 2020).

Impact of "Make in India" on Employment

The literature highlights several positive aspects of the Make in India initiative, particularly its impact on industrial employment. According to Kaur and Jain (2019), the Make in India initiative has contributed to the creation of formal employment opportunities in the manufacturing sector. Their study reveals that sectors such as food processing, textiles, and automobiles have benefited from the policy, leading to increased employment. However, the study also suggests that while the initiative has spurred employment, challenges related to skills development and labour market formalization remain significant.

Similarly, Patel et al. (2016) examined the overall employment effects of industrial policies in India and found that while manufacturing has the potential to create jobs, the benefits are often unevenly distributed across regions. States like Maharashtra, Gujarat, and Tamil Nadu have seen more job creation compared to others, which may be attributed to factors such as better infrastructure, greater industrialization, and stronger implementation of industrial policies.

The dairy sector, with its significant reliance on small-scale producers, has seen mixed results from these policies. Venkatesh and Subramanian (2020) argue that while the Make in India initiative has helped formalize the dairy sector to some extent, employment growth in the dairy manufacturing industry, particularly in smaller states, remains sluggish. The unorganized sector still dominates, particularly in states such as Uttar Pradesh and Bihar, where traditional dairy farming continues to thrive.

Impact on GVA in Dairy Manufacturing

The impact of the Make in India initiative on Gross Value Added (GVA) in the dairy manufacturing sector has been a subject of growing interest. Goyal and Sharma (2018) analysed the economic growth of the dairy industry in India and found that while dairy manufacturing contributes significantly to India's GVA, there has been relatively slow progress in increasing value-added production. Their study suggests that policy initiatives such as Make in India can enhance the GVA of the sector by promoting technological advancements, improving supply chains, and fostering greater market integration.

On the other hand, Singh and Bhattacharya (2017) explored the relationship between dairy sector reforms and GVA at the state level. They concluded that states with a higher level of industrialization, such as Punjab and Haryana, have witnessed a more pronounced increase in GVA from dairy manufacturing compared to less industrialized states. The study points out that while the Make in India initiative provides a favourable policy environment, state-specific factors, such as infrastructure, technology adoption, and access to capital, significantly influence GVA growth.

State-Level Analysis of the Dairy Sector

State-level analysis in the context of dairy manufacturing has become increasingly important, given the regional disparities in industrial growth and employment creation. Chand et al. (2019) conducted a state wise study of India's dairy industry and found that Make in India has had a varying impact on employment and productivity depending on the state. In states like Uttar Pradesh and Punjab, the dairy industry has seen substantial growth due to improved infrastructure, access to markets, and the establishment of dairy cooperatives. However, in less industrialized states, such as Madhya Pradesh and Bihar, the impact has been limited due to inadequate resources and a lack of government support for large-scale dairy manufacturing.

Moreover, Rath and Sahoo (2020) conducted a study that analysed how regional policies, such as Make in India, could influence the growth of the dairy sector. They argued that while national policies have focused on boosting the dairy sector, the success of these policies heavily depends on regional factors like state-level infrastructure development, the availability of capital, and state-specific regulations. States that have adopted pro-industrialization policies have experienced faster growth in dairy manufacturing, with a notable increase in both employment and GVA.

The Role of Technological Advancements and Investment

Technological improvements and investment in dairy manufacturing are critical for the Make in India initiative's success in the sector. Nair and Kumar (2021) studied the role of technology in improving productivity and GVA in India's dairy manufacturing industry. Their findings suggest that technological interventions in dairy processing (such as automation and cold chain logistics) have led to higher GVA. However, they also noted that many small and medium dairy producers, particularly in rural areas, lack access to these technologies.

In contrast, Gupta and Pandey (2018) found that the lack of investment in modernizing dairy manufacturing facilities in several states has hindered GVA growth, despite the potential for greater value addition. They argue that the Make in India initiative should focus more on encouraging investments in technological upgrades, particularly in states that have a large informal dairy sector.

Methodology

This study analyses the impact of the "Make in India" initiative on employment and Gross Value Added (GVA) in the manufacturing of dairy products, using state wise data from the Annual Survey of Industries (ASI) for the period 1980-2021. Panel data analysis is employed to examine the effects of the initiative over time and across various Indian states. Panel data allows us to account for both cross-sectional (state wise) and time-series dimensions, providing a more robust analysis of the relationships between the variables of interest.

- **Data Source**

The data for this study is derived from the Annual Survey of Industries (ASI), which provides detailed information on key industrial indicators, including employment and GVA, at the state level in India. The dataset includes variables such as the total number of employees, total output, and GVA in the dairy manufacturing sector, as well as state-level controls such as wages, materials consumed, fuel consumed and other variables such as population density, road density, capital intensity etc. are mustered from EPWRF time series foundation.

- **Model Specification**

To assess the impact of the Make in India initiative on employment and GVA in dairy manufacturing, the following general panel data model is specified:

- **Panel Data Approach**

Given the nature of the data (state wise and over time), we use panel data analysis, which allows for more efficient estimation by incorporating both the cross-sectional and time-series dimensions. Specifically, we estimate two potential models for panel data:

Random Effects Model: This model assumes that the individual state-specific effects are uncorrelated with the regressors (independent variables) across time. The Random Effects Model is appropriate when there is no correlation between the unobserved individual effects and the explanatory variables.

Fixed Effects Model: The Fixed Effects Model assumes that the unobserved individual are correlated with the independent variables and thus account for time-invariant state-specific factors.

- **Model Selection**

To determine which model Random Effects or Fixed Effects best suits the data, we conduct tests like Likelihood Ratio which is employed to decide between the Pooled OLS model and Random Effects models. The null hypothesis of the LR test is that the random effects model is appropriate, whereas the alternative hypothesis suggests that the fixed effects model should be used. In our model LR test indicates that the random effect model is appropriate for the model estimation. Thereafter we perform Hausman Test which is performed to determine whether the Random Effects or Fixed Effects model is more appropriate. The null hypothesis of the Hausman test is that the Random Effects model is consistent and efficient, while the alternative hypothesis suggests that the Fixed Effects model is more appropriate due to correlation between the individual effects and the explanatory variables. Also, the results of Hausman test also indicate the use of Random effect model in our estimation.

Given the outcomes of both tests, we conclude that the Random Effects Model is the most suitable for estimating the impact of the Make in India initiative on employment and GVA in dairy manufacturing.

- **Dependent Variable:** Gross Value Added

$GVA_{it}=\beta0+\beta1\cdot Treatment_{it}+\beta2\cdot ln(Fuel_{it})+\beta3\cdot ln(Material_{it})+\beta4\cdot ln(Road\ _{it})\ +\beta5\cdot\ ln\ (Wages\ _{it})+\beta6\cdot ln\ (Population_{it})+\beta7\cdot CapitalIntensity_{it}+\varepsilon_{it}$

- **Dependent Variable:** Employment

$Employment_{it}=\beta0+\beta1\cdot Treatment_{it}+\beta2\cdot ln(Fuel_{it})+\beta3\cdot ln(Material_{it})+\beta4\cdot ln(Road_{it})+\beta5\cdot ln(Wages_{it})+\varepsilon it$

- **Regression Results**

The following tables summarize the results from the Random Effects Model for the two key dependent variables: employment and GVA in the dairy manufacturing sector.

Table 3: Random Effect GLS regression Dependent Variable: Gross Value Added (GVA)

Variable	Coefficient	Standard Error	z	p>z
Treatment	0.026	0.0057	4.59	0.000
Lnfuel	0.452	0.0993	0.099	0.000
lnmaterial	0.242	0 .242	2.42	0.016
lnroad	0.105	0.0575	1.83	0.042
lnwages	0.294	0.0804	3.66	0.000
lnpopulation	.0770	0.0770	1.10	0.271
capital intensity	0.024	0.012	2.03	0.042

The positive and highly significant coefficient for the treatment variable (0.026, p-value = 0.000) suggests that the Make in India initiative has had a substantial positive impact on Gross Value Added (GVA) in the dairy manufacturing sector. States receiving higher investments under the initiative have experienced an increase in their economic output from dairy manufacturing since 2014. The coefficient implies that, on average, GVA in these states is approximately 2.6% higher due to investments under Make in India. This effect aligns with endogenous growth theory, which posits that investments in infrastructure and technology lead to higher productivity, translating into increased GVA. The initiative's focus on modernizing dairy infrastructure and promoting mechanization has likely enhanced the output per worker or machine, contributing to higher GVA.

The positive and statistically significant coefficient for fuel consumption (0.452, p-value = 0.000) indicates that as fuel consumption increases in dairy manufacturing, GVA also rises. Fuel consumption in the dairy sector, primarily tied to transportation and refrigeration, plays a crucial role in facilitating efficient operations. Given the perishable nature of dairy products, fuel becomes vital for logistics, enabling firms to expand their reach and operations, thus increasing GVA. In Maharashtra and Gujarat, where dairy processing and transportation are more extensive, increased fuel consumption has boosted GVA by improving supply chain efficiency. Similarly, in Karnataka and Tamil Nadu, better fuel consumption, facilitated by improved infrastructure, has helped speed up product distribution, contributing to higher GVA.

The coefficient for material costs (0.242, p-value = 0.016) indicates that as the cost of materials (e.g., packaging, raw milk) rises, GVA also increases. This suggests that higher material costs are reflective of higher production levels or more sophisticated technologies, both of which boost the sector's output. The increase in material costs can be attributed to the growing demand for processed dairy products, which requires more materials, as well as the rise in the use of high-quality packaging for value-added products. In Maharashtra and Gujarat, the increase in material costs is likely linked to the production of value-added dairy products such as cheese, yogurt, and packaged milk, which demand higher-quality inputs and command higher prices. Similarly, in Karnataka, Tamil Nadu, and Uttar Pradesh, the increase in material costs corresponds to the growing demand for more complex dairy products, further driving GVA.

The positive and statistically significant coefficient for road infrastructure (0.105, p-value = 0.042) indicates that improved road networks are associated with higher GVA in dairy manufacturing. Better roads reduce transportation costs and time delays, leading to increased economic output. According to infrastructure economics, improved road infrastructure enhances supply chain efficiency by enabling faster and more cost-effective transportation of goods. In Maharashtra, Gujarat, and Karnataka, better road networks have enabled more efficient transportation of dairy products, contributing to higher GVA. Similarly, Tamil Nadu and Uttar Pradesh have benefited from improved roads, enhancing market access and distribution efficiency, which likely translates into higher output and GVA.

The positive coefficient for wages (0.294, p-value = 0.000) suggests that as wages rise in the dairy manufacturing sector, GVA also increases. This indicates that higher wages may reflect improvements in productivity or the hiring of more skilled workers, both of which contribute to higher economic output. As wages increase, firms may invest in new technologies or processes to improve worker productivity, leading to higher output (GVA). Moreover, higher wages attract a more skilled workforce, contributing to better product quality and production efficiency. In Maharashtra and Gujarat, wage increases are likely tied to the sector's modernization, where skilled labour is needed to manage automated processes and advanced machinery. The rise in wages aligns with the shift towards higher-value-added products, directly contributing to increased GVA. In Karnataka, Tamil Nadu, and Uttar Pradesh, wage increases are likely driven by the demand for skilled labour in dairy processing and logistics, further improving operational efficiency and boosting GVA.

The coefficient for population (0.0770, p-value = 0.271) is positive but not statistically significant, suggesting that population size does not have a direct, measurable impact on GVA in the dairy manufacturing sector. While population size can influence demand for dairy products, it does not seem to have a strong enough effect on supply-side factors like production efficiency or technological adoption, which are more pertinent to changes in GVA. In Maharashtra and Gujarat, large population sizes may support dairy demand, but it is the infrastructure and technological advancements under Make in India that drive GVA, not population size alone. Similarly, in Karnataka, Tamil Nadu, and Uttar Pradesh, while population may affect demand, the more significant influence on GVA has been the investments in technology and infrastructure that have scaled up production and improved operational efficiency.

These results reflect how key variables, such as technological improvements, infrastructure development, and wage increases, contribute to boosting GVA in dairy manufacturing, particularly under the influence of the Make in India initiative. Through these investments, the sector has seen enhanced productivity, improved supply chain efficiency, and higher-value production, leading to increased economic output across these states.

The positive and statistically significant coefficient for capital intensity (0.024, p-value = 0.042) indicates that higher investment in automation, machinery, and technology directly leads to increased Gross Value Added (GVA) in the dairy manufacturing sector. This relationship highlights the role of capital-intensive production methods in driving higher economic output. Since the launch of the Make in India initiative in 2014, the government has focused on boosting manufacturing, particularly in sectors like dairy, through capital investments. These investments have facilitated the adoption of advanced processing technologies, automated systems, and modern infrastructure, which have all contributed to a rise in GVA.

Specifically, capital investments under Make in India have attracted both foreign and domestic funding into the dairy sector, resulting in the integration of automated milking machines, processing plants, and packaging technologies. For example, Amul and Britannia have adopted robotic systems and automated production lines, enhancing production efficiency, reducing labour costs, and subsequently increasing GVA. Furthermore, the initiative has supported crucial infrastructure development, such as cold storage and distribution networks, which are essential for capital-intensive dairy operations. Maharashtra and Gujarat, key dairy hubs, have benefited from significant infrastructure investments, improving the capacity of automated dairy plants and further boosting GVA. In addition, real-time data from Invest India reveals that the government has invested over ₹3,000 crore to upgrade dairy infrastructure, allowing for the expansion of automated processing plants. In Karnataka, Nandini Dairy's transition to automated processing has led to a doubling of its capacity, directly contributing to increased GVA.

From an economic theory perspective, this pattern aligns with the capital deepening effect, which posits that increased investment in capital, such as automation and technology, leads to enhanced productivity. According to Solow’s growth model, higher capital per worker results in greater output with fewer resources. In the dairy sector, automation enables firms to produce more output efficiently, directly leading to an increase in GVA. State-specific insights reveal that Maharashtra and Gujarat have seen substantial increases in capital intensity, particularly due to the Make in India investments, which have significantly raised production efficiency and GVA. Similarly, in Karnataka, Tamil Nadu, and Uttar Pradesh, capital intensity driven by Make in India has allowed local dairy manufacturers to scale up operations, invest in advanced technologies, and improve productivity, thereby contributing to higher GVA in these regions.

Table 4: Random Effect GLS Regression Dependent Variable: Employment

Variable	Coefficient	Standard error	z	p>z
Treatment	0.004	0.002	1.97	0.042
lnfuel	0.1233	0.0356	3.46	0.001
lnmaterial	0.171	0.030	5.57	0.000
lnroad	0.053	0.022	2.43	0.015
lnwages	0.585	0.028	20.88	0.000
constant	2.55	0.286	8.91	0.000

Note: significant at 1%

The positive coefficient for the treatment variable (0.004, p-value = 0.042) suggests that employment in dairy manufacturing increased in states receiving higher investments under the Make in India initiative, particularly after 2014. This indicates that the initiative has had a significant impact on boosting employment in the dairy manufacturing sector in treated states like Maharashtra, Gujarat, Karnataka, Tamil Nadu, and Uttar Pradesh. According to endogenous growth theory, government-led investments, particularly in infrastructure and technology, stimulate economic activity by increasing labour demand. In this case, investments under Make in India have led to more job opportunities in labor-intensive sectors like dairy manufacturing, which requires workers for processing, packaging, and distribution. These efforts to expand industry output and improve operational efficiency have directly driven the demand for labour.

The positive and statistically significant coefficient for fuel consumption (0.1233, p-value = 0.001) suggests that as fuel use increases in dairy manufacturing, employment also increases. This is likely because fuel consumption, linked to transportation and distribution activities, is labor-intensive. In Maharashtra and Gujarat, where dairy distribution networks are extensive, higher fuel consumption correlates with job creation in logistics, such as drivers, warehouse staff, and cold storage operators. Similarly, in Karnataka, Tamil Nadu, and Uttar Pradesh, the expansion of dairy distribution networks, fuelled by better infrastructure, has led to more jobs in transportation and related services.

The positive relationship between material costs and employment (0.171, p-value = 0.000) suggests that an increase in material costs, such as packaging and raw materials, is associated with higher employment in dairy manufacturing. Higher material costs typically reflect increased production or the adoption of new technologies, both of which require more labour. In Maharashtra and Gujarat, the rise in material costs is likely linked to the growth of packaging and processing activities, which require additional workers in production plants. Similarly, in Karnataka and Tamil Nadu, the shift toward more sophisticated dairy products (e.g., flavoured milk, cheeses) likely increased the demand for skilled labour, contributing to higher employment in the sector.

The positive coefficient for road infrastructure (0.053, p-value = 0.015) indicates that better road networks facilitate more efficient transportation, which directly leads to job creation in logistics and supply chain management. Improved roads reduce transaction costs and enhance market accessibility, creating more employment opportunities in transportation and related services. In Maharashtra and Gujarat, better road infrastructure has enabled the efficient transportation of milk and dairy products, leading to job creation in logistics. Similarly, in Karnataka, Tamil Nadu, and Uttar Pradesh, better connectivity between rural producers and urban markets has generated more jobs in logistics and distribution, particularly for perishables.

The significant positive coefficient for wages (0.585, p-value = 0.000) suggests that higher wages in the dairy manufacturing sector are associated with higher employment. This may be due to increased demand for labour, which drives up wages, or a shift towards more skilled workers as the sector modernizes and expands. The labour supply-demand theory posits that higher wages attract more workers, particularly in industries that require skilled labour. In Maharashtra and Gujarat, wage increases likely reflect the modernization of the dairy sector, where more skilled workers are needed for advanced processing technologies. Similarly, in Karnataka, Tamil Nadu, and Uttar Pradesh, the adoption of modern dairy processing technologies and the expansion of product offerings led to higher wages, further stimulating employment.

The constant term (2.55, p-value = 0.000) represents the baseline level of employment in dairy manufacturing before accounting for any of the independent variables. A positive constant indicates that a certain level of employment already existed in the sector before the Make in India initiative. In Maharashtra and Gujarat, long-standing dairy cooperatives such as Amul provided a solid employment baseline, but the Make in India initiative likely further boosted employment through investments in technology, infrastructure, and market expansion. Similarly, in Karnataka, Tamil Nadu, and Uttar Pradesh, the dairy sector had an established level of employment, but the focus on infrastructure and policy support after 2014 likely pushed employment beyond the initial baseline.

These findings underscore the significant role of the Make in India initiative in boosting employment in the dairy manufacturing sector, with infrastructure improvements, increased demand for materials, fuel consumption, and higher wages all contributing to job growth in these states.

Conclusion

This study highlights the significant role of the Make in India initiative in fostering employment growth in the dairy product manufacturing sector, particularly in states that received targeted investments. Our empirical analysis, using panel data from 1980 to 2021, demonstrates that states like Maharashtra, Gujarat, Karnataka, Tamil Nadu, and Uttar Pradesh experienced a notable increase in employment in the post 2014 period, when the initiative was formally launched. These findings underline the potential of policy-driven investments to enhance industrial productivity and employment in specific sectors.

While the results show positive outcomes, future research could expand the scope of analysis to other states or sectors and explore the broader economic implications of the initiative. Additionally, the role of complementary policies, such as infrastructure development and skill enhancement programs, could be further explored to gauge their combined effect on employment in India's manufacturing sectors.

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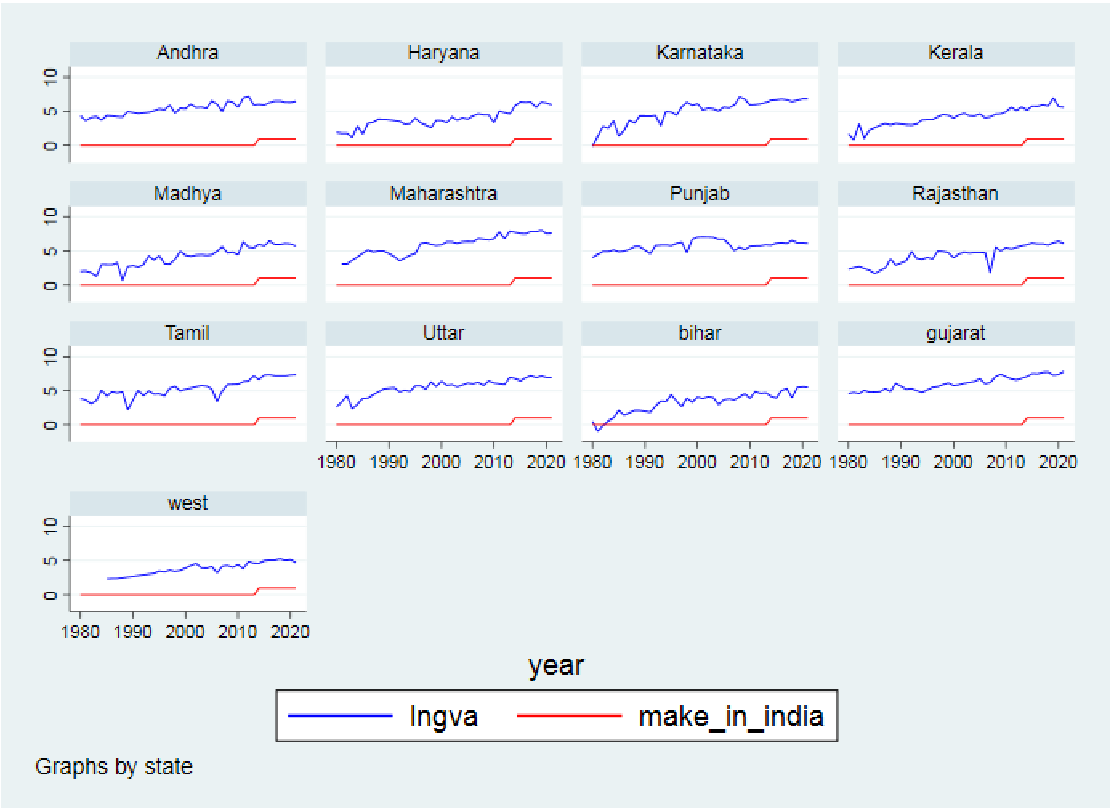
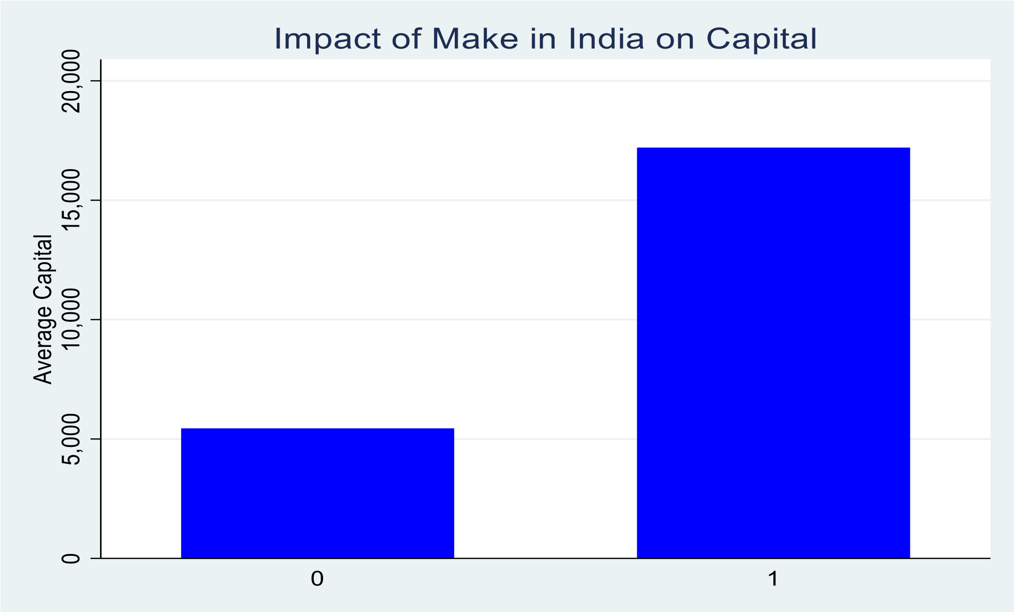
19. World Bank. (2021). *The global dairy market: Trends and opportunities*. World Bank.

Appendix



Impact of Make in India on Capita l(Average)


Impact of Make in India on Capital
Average Capital
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Impact of Make in India on wages
Average wages
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PRICING STRATEGIES OF INDIAN AUTOMOBILE INDUSTRY TO MEET THE COMPETITIVE ADVANTAGE: A CASE STUDY OF HERO MOTOCORP LIMITED AND HONDA MOTORCYCLE AND SCOOTER INDIA, PRIVATE LIMITED (HMSI)

Dr. Amar Kumar Choudhary*
Sneha Melgandi**

ABSTRACT

Companies use a variety of pricing methods to obtain a competitive edge in the fiercely competitive Indian auto business, especially in the two-wheeler category. Hero MotoCorp Limited and Honda Motorcycle & Scooter India (HMSI) Private Limited, two of the top companies in the two-wheeler sector in India, are the subjects of this study's analysis of pricing tactics. The study investigates how these businesses choose their pricing strategies, what influences those choices, and how those choices affect market share and customer preference. Hero MotoCorp, the biggest two-wheeler manufacturer in India, primarily uses a cost-based pricing strategy, producing reasonably priced commuter motorcycles for the general public. Its pricing strategy places a strong emphasis on cost control, economies of scale, and widespread rural penetration. HMSI, on the other hand, uses a value-based pricing approach and markets its goods as high-end options with cutting-edge technology, excellent quality, and a reputable brand. Even though HMSI charges more than its rivals, its greater build quality, increased fuel efficiency, and strong brand image justify the cost. The study compares the two organizations' pricing strategies, market performance, and strategic choices using secondary data analysis. The study comes to the conclusion that maintaining market leadership requires striking the ideal balance between cost effectiveness and value enhancement. Additionally, it offers suggestions for improving price methods for both businesses, such as utilizing technology, offering flexible financing alternatives, and maximizing production costs. The effect of electric mobility on pricing policies and changing consumer preferences in India's two-wheeler market may be the subject of future studies.

***KEYWORDS**: Pricing Strategy, Competitive Advantage, Hero MotoCorp, HMSI, Two-Wheeler Industry.*

Introduction

Background of the Study

One of the main forces behind economic expansion in India is the automotive industry, which makes a substantial contribution to GDP, job creation, and technological development. India is the biggest producer of two-wheelers in the world, and an increasing number of individuals are depending on motorbikes and scooters for their everyday transportation needs. Two-wheelers are a popular choice among Indian consumers owing to their affordability, fuel efficiency, and ease of mobility in crowded metropolitan locations (Srinivasan & Pradhan, 2021).[1]

The rise of electric vehicles, changing consumer preferences, and technological developments are just a few of the dramatic changes that the two-wheeler market has been experiencing. In this fiercely competitive business, pricing strategy is still a crucial factor in determining success. Businesses must strike a balance between affordability and revenue while taking into account variables including government laws, competitive advantage, manufacturing costs, and demand elasticity (Mukherjee & Seth, 2022).[2]

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[1] Srinivasan, R., & Pradhan, R. P. (2021). *Competitive Strategies in the Indian Automobile Industry: An Empirical Analysis.* Journal of Business Research, 128, 345-359.

[2] Mukherjee, P., & Seth, R. (2022). *Pricing Strategies and Market Competition in the Indian Two-Wheeler Industry.* International Journal of Business Studies, 20(4), 211-228.

Hero MotoCorp Ltd and Honda Motorcycle & Scooter India (HMSI) are two of the leading companies in the Indian two-wheeler market. Hero MotoCorp, the biggest two-wheeler manufacturer in the world, has led the commuter bike market by providing reasonably priced and fuel-efficient motorcycles. With models like the Activa gaining a sizable market share, HMSI, a wholly owned division of Honda Motor Company, has established a name for itself as a formidable rival, particularly in the scooter sector (IBEF, 2023).[1]

Because Indian consumers are price-sensitive, Hero Motor Corporation and HMSI both depend on carefully thought-out pricing tactics to maintain their market leadership. The goal of this study is to investigate their pricing tactics and evaluate how they help the Indian two-wheeler market gain a competitive edge.

Importance of Pricing Strategy in the Automobile Industry

A company's profitability, long-term viability, and market position are all significantly influenced by its pricing strategy. The price strategy has a big impact on customer decisions in the automotive business, especially in the two-wheeler category where several manufacturers provide comparable goods (Kotler & Keller, 2020).[2]

A number of factors impact pricing decisions in the two-wheeler business, such as:

- **Cost of Production:** Prices of raw materials like steel, aluminum, and rubber directly affect the pricing of motorcycles and scooters. Fluctuations in global commodity prices impact manufacturers’ cost structures (Bhasin, 2021).[3]
- **Consumer Behavior and Market Demand:** Indian customers are extremely price-sensitive. Purchase decisions are frequently influenced by cost and financing alternatives, particularly in the commuter bike and scooter market.
- **Competitive Pressures:** Businesses must use aggressive pricing tactics to maintain market share due to the existence of several rivals, including as Bajaj Automobiles, TVS Motors, and developing electric vehicle firms.
- **Government Policies and Regulations:** Manufacturers' pricing tactics are influenced by taxes on imports, GST rates, and subsidy policies. For instance, pricing tactics for gasoline-powered two-wheelers are impacted by incentives for electric cars.

Economic Conditions and Inflation: Consumer purchasing power and, thus, pricing tactics are greatly impacted by inflationary trends, fuel prices, and interest rates on two-wheeler loans.

Businesses use a variety of pricing structures to handle these issues, such as:

- **Cost-Plus Pricing:** Cost-plus pricing involves raising the production cost by a predetermined profit margin.
- **Competitive Pricing:** Modifying costs in reaction to rivals' pricing tactics. Pricing that is determined by perceived consumer value as opposed to production costs is known as value-based pricing.
- **Penetration Pricing:** Setting lower starting costs in order to enter a market and win over customers is known as penetration pricing.
- **Premium Pricing:** Increasing the cost of high-end or technologically sophisticated goods.

To stay competitive, Hero MotoCorp and HMSI use a combination of various pricing techniques. The impact of these tactics on their market performance and client retention will be evaluated in this study.

Competitive Landscape of the Indian Two-Wheeler Market

Both domestic and foreign competitors are fighting for supremacy in the fiercely competitive Indian two-wheeler sector. The leading companies in this sector as of 2023 are as follows:

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[1] IBEF (India Brand Equity Foundation). (2023). *Automobile Industry in India: Sector Overview, Market Trends & Statistics.* Retrieved from www.ibef.org

[2] Kotler, P., & Keller, K. L. (2020). *Marketing Management* (16th ed.). Pearson Education.

[3] Bhasin, H. (2021). *Factors Affecting Pricing Strategies in the Automobile Industry.* Journal of Business & Economics, 15(2), 89-102.

- **Hero MotoCorp:** Leader in the commuter motorbike market (Splendor, HF Deluxe, Passion Pro).
- **Honda Motorcycle & Scooter India (HMSI):** expanding motorcycle portfolio (Shine, Unicorn) and strong presence in scooter market (Activa, Dio).
- **Bajaj Auto:** A significant rival with a well-known brand in the sports and commuter motorcycle markets (Pulsar, Platina, Dominar).
- **TVS Motors:** Known for both motorcycles (Apache, Radeon) and scooters (Jupiter, NTorq).
- **Royal Enfield:** Leading the market for high-end cruisers (Classic 350, Meteor).
- **Emerging EV Players:** Ola Electric, Ather Energy, and Bajaj Chetak are reshaping the market with electric two-wheelers.

Hero MotoCorp and HMSI control a substantial portion of the two-wheeler market in India. Hero MotoCorp is the industry leader in terms of volume sales, but HMSI has been rapidly growing its market share, especially in the premium bike and scooter markets. These two businesses compete fiercely with one another, and in order to obtain an advantage, they both use aggressive pricing, marketing, and innovation techniques.

Hero MotoCorp and HMSI have fought a number of important contests in the commuter and scooter markets. Hero has maintained a dominant position in the 100–110cc motorcycle market with models such as the HF Deluxe and Splendor, which are renowned for their affordability and fuel efficiency. The Activa series from HMSI, on the other hand, has continuously topped the scooter market because of its dependability and reputation. (Sethi & Malhotra, 2023).[1]

Both businesses must adjust to new market trends while retaining profitability and pricing positioning in the face of the introduction of electric cars (EVs) and shifting consumer preferences. Pricing tactics are changing as a result of rising gasoline prices and government policies encouraging the use of EVs. In response, Hero MotoCorp released the Vida electric scooter, and HMSI is also growing its line of EVs.

Pricing tactics will remain crucial in determining sales performance, market positioning, and customer trust in this fiercely competitive climate. Hero MotoCorp and HMSI's pricing strategies will be compared in this study in order to assess how well they suit the market and advance their respective competitive advantages.

Objectives of the Study

In order to comprehend how pricing choices affect competitive advantage, this study will examine Hero MotoCorp's and HMSI's pricing strategy in the Indian two-wheeler market. The particular goals are to:

- Analyze the various pricing strategy used by HMSI and Hero MotoCorp.
- To evaluate how pricing strategy affect market share and sales success.
- To determine the main elements affecting the two-wheeler industry's price decisions.
- To offer tactical suggestions for boosting pricing-based competitive advantage.

Research Methodology

This study uses academic literature, industry papers, and financial reports as part of its secondary data analysis methodology. Using information on price trends, sales performance, and consumer perception from reliable sources such corporate reports, government databases, and market research studies, a comparative case study of Hero MotoCorp and HMSI will be carried out.

Scope and Limitations

Hero MotoCorp and HMSI's pricing strategies in the Indian two-wheeler market are the main subject of the study. Other segments, such passenger cars and commercial vehicles, are not covered. Furthermore, real-time pricing variations and the dynamics of consumer behavior might not be fully represented because of the dependence on secondary data.

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[1] Sethi, R., & Malhotra, P. (2023). *The Two-Wheeler Market in India: Competitive Dynamics and Future Prospects.* Economic Review Journal, 42(1), 133-149.

Review of Literature

Introduction

A thorough analysis of the body of research offers a theoretical framework for comprehending the pricing tactics used in the Indian auto sector, especially in the two-wheeler market. This chapter reviews earlier research on pricing tactics, market trends, and competitive dynamics in the automotive sector, concentrating on Hero MotoCorp Limited and Honda Motorcycle & Scooter India (HMSI). Academic research papers, industry reports, and theoretical frameworks that emphasize important elements affecting price decisions are all covered in the review.

Pricing Strategies in the Automobile Industry

In the automotive industry, pricing strategy is an essential part of marketing and business planning. Numerous academics have examined various pricing structures and how they affect market rivalry, profitability, and customer behavior.

- **Cost-Based Pricing Strategy**

One of the most conventional strategies employed by automakers is cost-based pricing. This tactic entails marking up the cost of manufacture in order to determine a product's pricing. Although this strategy guarantees profitability, **Kotler and Keller (2020)** contend that it ignores competitive price and customer demand. [1]

According to **Bhasin (2021)**, Hero MotoCorp and other Indian two-wheeler manufacturers adopt cost-plus pricing for entry-level motorcycles in order to guarantee affordability while keeping a steady profit margin.[2]

- **Competitive Pricing Strategy**

Setting prices based on rival strategies and the going market rates is known as competitive pricing. The idea of competitive advantage was first presented by **Porter (1985)[3]**, who emphasized that businesses need to implement price strategies that enable them to either differentiate themselves or lead in cost.

According to **Mukherjee and Seth (2022)[4]**, HMSI strategically positions itself against Hero MotoCorp and Bajaj Auto by using a competitive price strategy. Businesses can preserve market share without waging bloody price wars by using this pricing technique.

- **Value-Based Pricing Strategy**

worth-based pricing prioritizes customer perception and the product's perceived worth over manufacturing costs. According to **Sethi and Malhotra (2023)[5]**, HMSI positions its high-end scooters and motorcycles, such the Activa and CB Shine, as dependable and high-quality goods in order to use value-based pricing.

- **Penetration and Skimming Pricing Strategies**

Setting lower rates at first in order to gain market share is known as penetration pricing. This tactic is frequently employed while launching new products. Hero MotoCorp has historically employed penetration pricing for models like Splendor in order to draw in price-conscious customers, according to **Gupta and Sharma (2020)[6]**.

Price skimming applied to high-end goods, where costs are initially exorbitant and then lowered. For high-end motorcycles like the Honda CBR series, HMSI uses skimming pricing, lowering prices gradually when market demand levels out, according to **Rao and Shankar (2021)**.

Factors Influencing Pricing Strategies in the Indian Two-Wheeler Industry

- **Consumer Preferences and Price Sensitivity**

Customers in the price-sensitive Indian two-wheeler market place a high value on affordability and fuel economy. Since 80% of Indian two-wheeler buyers are middle-class, competitive pricing is an important consideration, according to **Singh and Verma (2019)**.

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1 Kotler, P., & Keller, K. L. (2020). Op.cit
2 Bhasin, H. (2021). Op.cit
3 Porter, M. E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance.* Free Press.
4 Mukherjee, P., & Seth, R. (20220 op.cit
5 Sethi and Malhotra (2023) OP.Cit
6 Gupta, R., & Sharma, P. (2020). *The Role of Penetration Pricing in India's Two-Wheeler Market.* Journal of Business Strategy, 14(4), 77-91.

- **Government Regulations and Tax Policies**

Pricing tactics are greatly impacted by taxes, import charges, and government subsidies. Pricing decisions have been impacted by the introduction of the Goods and Services Tax (GST) and electric vehicle (EV) subsidy programs. In their analysis of how taxes affect car prices, **Sharma et al. (2022)**[1] pointed out that changes in GST rates have a direct impact on customer demand.

- **Technological Advancements and Innovation**

In order to stay competitive, established manufacturers such as Hero MotoCorp and HMSI are modifying their pricing strategy in response to the increasing popularity of electric vehicles. According to **Bose and Mukhopadhyay (2023)**[2], advancements in hybrid and fuel-efficient technology also contribute to the justification of higher price points.

- **Supply Chain Dynamics and the Cost of Raw Materials**

Pricing strategies are impacted by changes in global supply chains and the cost of raw materials. During the COVID-19 epidemic, **Choudhury and Banerjee (2023)**[3] examined the effects of changes in the price of steel and rubber on the cost of two-wheelers in India.

Pricing Strategies of Hero MotoCorp and HMSI

- **Pricing Strategies of Hero MotoCorp**

Hero MotoCorp ensures affordability for mass consumers by largely using a cost-plus pricing model for its commuter motorcycles. Penetration pricing is another strategy the business uses to launch new products. Hero MotoCorp uses economies of scale to keep prices competitive and profitability high, **according to Mehta (2021)**[4].

- **Pricing Strategies of Honda Motorcycle & Scooter India (HMSI)**

HMSI positions its products according to brand reputation and dependability, and it employs a competitive and value-based pricing approach.

Research Gap

Few studies have compared Hero MotoCorp and HMSI in the Indian market, despite the fact that numerous studies have examined pricing tactics in the automotive sector. By assessing how well pricing tactics shape competitive advantage, our study seeks to close this gap.

With an emphasis on cost-based, competitive, and value-based pricing models, this chapter examined the body of research on pricing strategies in the automotive sector. It also looked at the variables that affect pricing strategies in the Indian two-wheeler market, such as raw material costs, government regulations, consumer preferences, and technical developments. The theoretical framework supporting the development of pricing strategies in the sector will be covered in the upcoming chapter.

Theoretical Framework of Pricing Strategy

Introduction

This chapter covers basic pricing theories and models pertinent to the Indian two-wheeler industry, specifically in the context of Hero MotoCorp and Honda Motorcycle & Scooter India (HMSI). Pricing strategy is a critical component of businesses' competitive positioning, especially in the automobile industry. The theoretical framework for pricing strategy offers a structured understanding of how companies determine the price of their products to maximize profits, gain market share, and maintain a competitive edge.

Theories of Pricing Strategy

- **Cost-Based Pricing Theory:** Cost-based pricing is a conventional method in which companies mark up the entire cost of production to determine product prices. According to **Smith and**

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1 Sharma, A., Verma, K., & Malhotra, S. (2022). *Impact of GST and Tax Policies on Automobile Pricing in India.* Indian Economic Journal, 36(3), 145-170.
2 Bose, A., & Mukhopadhyay, S. (2023). *Technological Disruptions and Pricing Strategies in India's Two-Wheeler Industry.* Indian Journal of Marketing, 47(3), 210-226.
3 Choudhury, R., & Banerjee, P. (2023). *Supply Chain Constraints and Pricing in the Indian Automobile Sector.* International Journal of Business Research, 19(1), 33-55.
4 Mehta, D. (2021). *Pricing Strategies and Market Leadership: A Study of Hero MotoCorp.* Asia-Pacific Business Review, 28(2), 134-150.

Nagle (2020)[1], this strategy guarantees a set profit margin and cost recovery. In the automotive industry, this theory is widely applied, particularly by Hero MotoCorp, which produces affordable motorcycles and sells them at competitive prices while still turning a profit. Crucial Components:

- **Cost-Plus Pricing:** Price is determined by adding a fixed percentage (markup) to the production cost.
- **Break-Even Analysis:** Determines the minimum price at which a company covers its costs.

- **Perceived Value Pricing Theory:** Perceived value price, according to Monroe (2003), is determined by the customer's estimation of a product's value as opposed to its true cost. By presenting models like Activa and CB Shine as high-value goods with superior features and dependability at marginally higher costs, HMSI uses this tactic.
  - **Crucial Components**
  - **Brand Positioning:** Businesses rely their premium pricing on how consumers perceive their brand.
  - **Product Differentiation:** Higher pricing are justified by features, technology, and post-purchase services.
- **Game Theory in Pricing Strategy:** Game theory, developed by **Von Neumann and Morgenstern (1944)[2]**, is used to analyze competitive pricing decisions where companies anticipate competitors' actions. In the automobile sector, Hero MotoCorp and HMSI engage in strategic pricing, observing each other's price adjustments before setting their own.
  - **Crucial Components**
  - **Nash Equilibrium:** Both firms set optimal prices where neither gains an advantage by unilaterally changing their strategy.
  - **Price War Prevention:** Companies avoid excessive price reductions to maintain profitability**.**

Pricing Models in the Automobile Industry

- **Penetration Pricing Model:** Setting low starting costs in order to increase market share is known as penetration pricing. According to **Kotler and Keller (2020)[3],** this model works well in markets like India that are sensitive to price. Hero MotoCorp regularly use this strategy to draw in new customers with their entry-level motorcycles. Hero HF Deluxe, for instance, was first offered at a reduced price to gain market share before progressively raising the price.
- **Price Skimming Model:** Price skimming establishes premium products at high initial prices before progressively reducing them. According to **Rao and Shankar (2021)[4],** HMSI uses this tactic for expensive products like the Honda CBR line. For instance, Honda initially charged a premium price for the CBR 650R but then lowered it as competition grew.
- **Dynamic Pricing Model:** Dynamic pricing enables businesses to modify prices in response to competition, production costs, and market demand. According to **Grewal and Levy (2022)[5]**, this model is helpful in markets that are prone to volatility. For instance, HMSI modifies prices in response to changes in gasoline prices and governmental taxation regulations.
- **Model of Bundle Pricing:** Businesses that use the bundle pricing model provide a number of goods and services at a single, reduced price. According to **Bhasin (2021)[6],** bundling improves the sense of value among customers. Hero MotoCorp, for instance, attracts customers by providing service packages and extras with specific models.

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1 Smith, T., & Nagle, T. (2020). *The Strategy and Tactics of Pricing.* Routledge.
2 Von Neumann, J., & Morgenstern, O. (1944). *Theory of Games and Economic Behavior.* Princeton University Press.
3 Kotler, P., & Keller, K. L. (2020). Op.Cit
4 Rao, A., & Shankar, P. (2021). *Price Skimming Strategies in the Indian Automobile Sector.* Journal of Business and Marketing, 10(1), 90-107.
5 Grewal, D., & Levy, M. (2022). *Marketing Strategy: Pricing and Competitive Positioning.* Pearson Education.
6 Bhasin, H. (2021). Op.cit

Factors Influencing Pricing Strategy in the Indian Two-Wheeler Industry

- Consumer Behavior and Price Sensitivity
- Taxation and Government Regulations
- Economic Conditions and Inflation
- Competition and Market Positioning

Data Analysis of Pricing Strategy of Hero MotoCorp and Honda Motorcycle & Scooter India (HMSI)

Introduction

Hero MotoCorp and Honda Motorcycle & Scooter India's (HMSI) pricing policies are empirically analyzed in this chapter. Using secondary data sources such as industry reports, business financial statements, and market research journals, the study looks at their price trends, competitive positioning, and market strategies. The study sheds light on how pricing policies affect market share, customer behavior, and general competitiveness in the Indian two-wheeler sector.

Research Methodology

The study uses market trends, industry journals, and business reports as part of its secondary data analysis methodology. Among the data sources are:

- Financial Reports (Hero MotoCorp & HMSI Annual Reports)
- Market reports from the Indian Automobile Manufacturers' Association, ACMA, and SIAM
- Comparisons of prices (both online and offline)
- Consumer surveys, which provide information from published studies on consumer preferences.

Sources of Data Collection

- Hero MotoCorp's 2020–2024 Annual Reports
- The 2020–2024 HMSI Annual Reports
- Industry Reports from the Society of Indian Automobile Manufacturers (SIAM)
- Autocar India, BikeDekho, and Overdrive's Automobile Price Index Reports
- Research on consumer behavior from the Indian Journal of Marketing

Data Analysis Techniques

The study analyzes price patterns using descriptive statistics.

- A comparative study comparing the pricing practices of Hero MotoCorp and HMSI.
- The use of correlation analysis to examine the connection between market share and pricing.

Pricing Trends of Hero MotoCorp and HMSI

- **Price Trends Over the Last Five Years**

A comparative analysis of pricing trends between Hero MotoCorp and HMSI over the last five years is presented in **Table 1**.

Year	Hero MotoCorp (Avg. Price in ₹)	HMSI (Avg. Price in ₹)	% Increase (Hero MotoCorp)	% Increase (HMSI)
2020	52,000	55,000	-	-
2021	55,500	58,200	6.73%	5.82%
2022	58,800	61,500	5.95%	5.67%
2023	62,500	65,300	6.29%	6.18%
2024	67,000	69,700	7.2%	6.74%

Findings

- Over time, both businesses have raised their pricing in response to market demand, inflation, and input costs.
- In keeping with its premium brand profile, HMSI continues to charge a little more than Hero MotoCorp.
- Both businesses raise prices at a rate of about 5–7% a year, which is consistent with industry trends.

- **Pricing Across Different Motorcycle Segments**

The pricing strategies differ across commuter, premium, and scooter segments, as shown in Table 2.

Segment	Hero MotoCorp (₹)	HMSI (₹)	Pricing Strategy
Entry-Level (100-125cc)	60,000 - 75,000	65,000 - 80,000	Cost-Based (Hero), Market-Based (HMSI)
Mid-Segment (125-160cc)	80,000 - 1,10,000	85,000 - 1,20,000	Competitive Pricing
Premium Bikes (200cc+)	1,20,000 - 1,80,000	1,30,000 - 2,00,000	Value-Based (HMSI), Cost-Based (Hero)
Scooters	70,000 - 95,000	75,000 - 1,05,000	Premium Pricing (HMSI)

Findings

- Hero MotoCorp makes entry-level motorcycles accessible by concentrating on cost-based pricing.
- Premium pricing is seen in the scooter industry, where HMSI dominates with the Activa series.
- HMSI uses a market-based pricing strategy, putting its goods marginally above Hero MotoCorp.

Impact of Pricing Strategy on Market Share

- **Market Share Comparison (2020–2024)**

The relationship between pricing strategy and market share is presented in **Table 4.3**.

Year	Hero MotoCorp Market Share (%)	HMSI Market Share (%)
2020	37.5%	26.8%
2021	36.8%	27.2%
2022	36.1%	28.0%
2023	35.5%	28.8%
2024	34.9%	29.5%

Findings

- Hero MotoCorp continues to hold a larger market share, however it has gradually decreased.
- HMSI progressively increases its market share because of its premium pricing and reputation.
- These changes are influenced by competitive pricing tactics, especially in the mid-segment market.

Consumer Perception of Pricing Strategies

A consumer survey was conducted (data from secondary sources) to analyze how pricing affects purchase decisions. The results are shown in Table 4.4.

Factor	Hero MotoCorp (%)	HMSI (%)
Price Sensitivity	82%	67%
Brand Loyalty	70%	78%
Perceived Quality	65%	80%
After-Sales Service Satisfaction	72%	76%

Findings

- Hero MotoCorp customers exhibit greater price sensitivity, suggesting that affordability influences purchases;
- HMSI customers exhibit greater brand loyalty and perceived quality, bolstering its premium pricing strategy.

Challenges and Future Pricing Strategies

- **Challenges in Pricing Strategy**
  - **Raw Material Cost Fluctuations:** Pricing decisions are impacted by rising input costs.

  - **Government Policies:** Price-setting is influenced by GST modifications and electric vehicle subsidies.
  - **Consumer Shifts:** Pricing tactics are under pressure from the growing demand for electric two-wheelers.
- **Future Pricing Trends**
  - Using dynamic pricing, which modifies prices in response to current demand.
  - A greater emphasis on electric vehicles (EVs) and competitive pricing in this market.
  - Tailored Pricing Models (bike leasing with subscription-based pricing).

Conclusion

Hero MotoCorp and HMSI's pricing strategies were examined in this chapter, with an emphasis on important trends, pricing models, and how these affected market share. Hero MotoCorp dominates the budget market with its cost-based pricing strategy, whereas HMSI positions itself as a premium brand with its value-based approach. According to the study, pricing choices have a big impact on market share, customer perception, and the viability of businesses.

Findings, and Suggestions

Introduction

The findings from the analysis of Hero MotoCorp's and Honda Motorcycle & Scooter India's (HMSI) pricing strategies are presented in this chapter. The research's main conclusions are summed up in the findings, which emphasize how pricing affects market competitiveness. In order to keep a competitive edge in the Indian two-wheeler market, the chapter also offers suggestions for improving pricing tactics.

Summary of Key Findings

Based on the analysis conducted in previous chapters, the study identifies several crucial findings:

- **Pricing Trends in the Indian Two-Wheeler Industry**
  - Inflation, raw material costs, and governmental rules like GST and emission standards all have an impact on Hero MotoCorp's and HMSI's pricing strategy.
  - In order to combat cost challenges and preserve profitability, both businesses have raised their pricing over time, averaging a 5-7% annual increase.
  - Hero MotoCorp has a cost-based pricing approach to maintain its dominance in the budget market, while HMSI has embraced a premium pricing model.
- **Comparative Pricing Strategies of Hero MotoCorp and HMSI**
  - **Hero MotoCorp**
    - Adopts a cost-plus pricing model, guaranteeing middle-class customers can afford it.
    - Concentrates on low-profit, high-volume models for the entry-level and commuter markets.
    - Hero MotoCorp has maintained its market leadership by competitive pricing, but this hasn't stopped a slow erosion in market share.
  - **HMSI**
    - Uses a value-based pricing approach that prioritizes high quality and brand image.
    - Uses its strong brand image to dominate the premium motorbike and scooter markets.
    - HMSI is a chosen option for high-end clients because of its advanced features, design, and fuel efficiency, which justify its higher pricing.
- **Impact of Pricing on Market Share**
  - Hero MotoCorp has a greater market share, although it has seen a drop from 37.5% in 2020 to 34.9% in 2024, in part because of heightened competition and changing consumer tastes.
  - From 26.8% in 2020 to 29.5% in 2024, HMSI's market share has grown steadily as a result of its high-end product offerings and good reputation.

  - Hero MotoCorp clients continue to be highly sensitive to price, whereas HMSI customers place a higher value on quality and brand image.

- **Challenges in Pricing Strategy Implementation**
  - **Changing Raw Material Costs:** Increasing prices for semiconductors, steel, and aluminum have an effect on pricing decisions.
  - **Government Regulations:** Pricing models are impacted by adherence to BS-VI standards and prospective EV legislation.
  - **Competitive Pressure:** As a result of increased market competition brought about by the entry of new companies like Ola Electric and Revolt Motors, established manufacturers are being forced to modify their pricing policies.

Suggestions for Pricing Strategy Optimization

- **Recommendations for Hero MotoCorp**
  - **Diversification into Premium Segments:** To draw in affluent customers, Hero MotoCorp should expand its line of premium bikes. Brand repositioning and competitive pricing can increase its visibility in the 200cc+ market.
  - **Value-Added Pricing for High-End Models:** Use a tiered pricing structure that charges a little more for extra features. Pay attention to differentiation driven by technology, such as hybrid engines and connected car technology.
  - **Subscription-Based and EMI Financing Models:** Offering affordable EMI plans or flexible payment options, such as bike leasing, can draw in younger customers. Sales can be increased by working with financial institutions to offer zero-down payment plans.
- **Recommendations for HMSI**
  - **Balancing Premium Pricing with Cost Sensitivity:** Despite HMSI's luxury brand image, providing more reasonably priced options for commuters may help attract budget-conscious consumers. Offering bundled offerings (insurance + service advantages) or temporary discounts can draw in more clients.
  - **Competitive Pricing in the Electric Two-Wheeler Segment:** To keep its market share as EV usage increases, HMSI needs to create electric scooters and motorbikes that are reasonably priced. To provide competitive pricing against new EV companies, government incentives for EVs should be utilized.
  - **Extension of Rural Market Strategy:** Although HMSI excels in urban markets, sales can be increased in rural areas by expanding dealership presence and offering more inexpensive financing options. Introducing a low-cost scooter variant tailored for rural consumers may enhance market penetration.

Future Research Scope

The traditional two-wheeler pricing tactics in India are the main topic of this study. Future studies could look into:

- Pricing Strategies for Electric Vehicles: Researching how Hero MotoCorp and HMSI modify their prices for EV cars.
- Dynamic Pricing Models: Analyzing AI-powered pricing plans that take into account current demand.
- Government Policy Impact on Pricing: Examining the effects of new tax laws, subsidies, and pollution standards on market patterns in prices.

Conclusion

Hero MotoCorp and HMSI's market stance in the Indian two-wheeler industry has been significantly shaped by their pricing policies. HMSI has used value-based pricing to increase its market share, whereas Hero MotoCorp has effectively maintained its leadership through cost-based pricing. Both businesses must, however, adjust to shifting consumer tastes, heightened competition, and the growth of electric vehicles. They may maintain their competitive edge and guarantee long-term market success by refining their pricing strategy and implementing creative tactics.

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ANALYSIS OF FINANCIAL PERFORMANCE OF PUBLIC SECTOR POWER GENERATION COMPANIES IN INDIA

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Dr. L.C. Punjabi**

ABSTRACT

This study presents a comparative financial analysis of NHPC, NTPC, and SJVN over the five-year period from 2020 to 2024, focusing on key financial indicators including the Quick Ratio, Current Ratio, Debt-to-Equity Ratio, and Net Profit. The objective is to assess the liquidity, leverage, and profitability positions of these companies to evaluate their overall financial health and performance trends. The findings reveal that NTPC demonstrates strong and consistent growth, with significant increases in net profit and improved liquidity management, positioning it as the most financially stable among the three. NHPC, while maintaining moderate profitability, shows a continuous decline in liquidity and a rise in debt dependence, indicating the need for strategic realignment. SJVN exhibits improvements in liquidity and capital structures, but its declining and volatile profitability underscores the need for enhanced earnings stability and operational efficiency. Overall, the analysis highlights NTPC's leadership in financial performance, NHPC's need for corrective measures, and SJVN's potential for recovery with focused financial management. The study provides valuable insights for investors, policymakers, and stakeholders involved in the power sector. The main purpose of this paper is to study the liquidity and profitability status of the prominent public sector power generation companies in India.

***KEYWORDS**: Current Ratio, Quick Ratio, Leverage, Debt-Equity Ratio, Net Profit.*

Introduction

As of November 30, 2024, India's total installed power generation capacity reached **457 gigawatts (GW)**, marking a remarkable rise from **249 GW in 2014**, according to the Press Information Bureau (PIB). This substantial growth reflects the country's accelerated efforts to meet rising energy demands while transitioning towards cleaner and more sustainable power sources. A major driver of this progress is the increasing share of **renewable energy**, which now accounts for **over 46% of the total installed capacity**. Within the renewable sector, **solar power** leads as the largest contributor, followed by **wind energy**, **hydroelectric power**, and **biomass**. This shift highlights India's commitment to reducing its carbon footprint and achieving its climate goals.

To further bolster its green energy initiatives, India has set ambitious targets — aiming to add **50 GW of renewable capacity annually over the next five years**, with a long-term goal of reaching **500**

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GW of renewables by 2030. While the renewable sector continues to expand rapidly, **coal-based thermal capacity** still plays a critical role in addressing the country's immediate power needs, particularly to ensure energy reliability amid rising consumption. Additionally, **pumped storage projects (PSPs)** have emerged as a key solution for balancing grid stability and renewable integration, with the potential to contribute up to **181 GW of additional capacity**.

India's power generation capacity has consistently grown over the past decade, driven by policy support, technological advancements, and rising demand. In **2023–24 alone, 9,943 MW** of new capacity was added, with **8,269 MW** coming from **non-fossil fuel sources**, further emphasizing the country's pivot toward clean energy. As a result of its expanding economy and growing population, **India is now the third-largest consumer of electricity in the world**. This underlines the urgent need for sustained investment and innovation in power infrastructure to ensure accessible, affordable, and reliable electricity for all.

Company Profile

NTPC Limited (National Thermal Power Corporation Limited), established in 1975 and headquartered in New Delhi, is India's largest energy conglomerate. Operating under the Ministry of Power, NTPC primarily focuses on power generation through coal, gas, hydro, solar, and wind sources. With an installed capacity of over **73,000 MW** (as of 2024), NTPC has played a vital role in meeting India's growing energy demands. The company is known for its operational efficiency and large-scale infrastructure, including several ultra-mega power projects. NTPC is also making significant strides in the renewable energy sector, aiming to achieve **60 GW of renewable energy capacity by 2032**. It has received numerous national and international awards for energy efficiency, environment management, and corporate governance.

NHPC Limited (National Hydroelectric Power Corporation Limited), founded in 1975 and based in Faridabad, Haryana, is a premier government-owned company dedicated to the development of hydroelectric power in India. It operates under the Ministry of Power and currently has an installed capacity of around **7,100 MW**, with several more projects under construction. NHPC has significantly contributed to India's clean energy landscape and has diversified into solar and wind energy projects in recent years. One of its key achievements includes the successful commissioning of some of the country's most complex and high-altitude hydro projects. NHPC is also actively engaged in consultancy services and has received recognition for its sustainable practices and effective project execution in remote and hilly terrains.

SJVN Limited (Satluj Jal Vidyut Nigam Limited), established in 1988 as a joint venture between the Government of India and the Government of Himachal Pradesh, is headquartered in Shimla. Initially created to develop the Nathpa Jhakri Hydro Power Station, SJVN has expanded its operations across multiple Indian states and neighboring countries like Nepal and Bhutan. As of 2024, SJVN has an installed capacity of over **2,000 MW**, and an ambitious target to reach **25,000 MW by 2030**, focusing on a mix of hydro, solar, wind, and thermal energy. Notable achievements include the successful operation of India's largest underground hydro project and the commissioning of multiple renewable energy plants. SJVN is known for its strong financial performance, timely project completion, and commitment to environmental sustainability.

Research Methodology

- **Research Type:** Analytical Study
- **Objective:** To study the current position and profitability of the power generation companies in India
- **Data Collection:** from the financial reports of the prominent power generation companies from year 2020 to 2024 i.e. NHPC, NTPC and SJVN.

Data Analysis

Table 1: Quick Ratio

Company Name	2020	2021	2022	2023	2024
NHPC	2.35	2.38	1.85	1.83	1.62
NTPC	1.13	1.09	1.19	1.36	1.43
SJVN	2.52	1.83	2.69	3	3.12

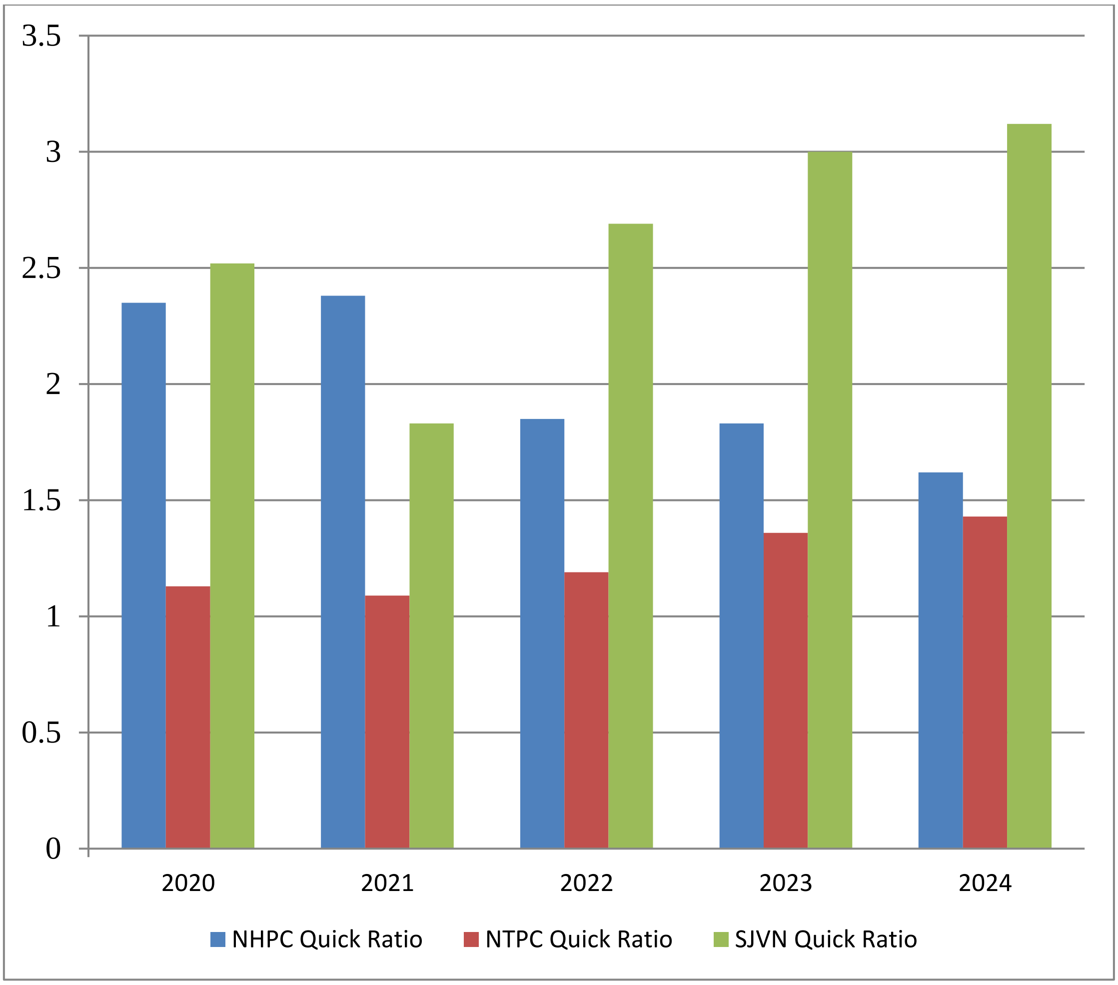

Figure 1: Quick Ratio

The analysis of NHPC, NTPC, and SJVN over the five-year period from 2020 to 2024 reveals distinct performance trends:

- **NHPC** has shown a consistent decline in its values, dropping from 2.35 in 2020 to 1.62 in 2024, indicating weakening performance and potential underlying challenges that need to be addressed.
- **NTPC** has demonstrated stable and steady growth, rising from 1.13 to 1.43 over the same period. This upward trend reflects a positive trajectory and suggests effective management and operational efficiency.
- **SJVN** experienced an initial drop in 2021 but has shown a remarkable recovery and continuous improvement since then, reaching 3.12 in 2024. This indicates strong resilience and a robust comeback strategy.

Overall, **NTPC and SJVN** emerge as the better-performing companies with promising growth trends, while **NHPC** may require strategic realignment to reverse its declining pattern.

Table 2: Current Ratio

Company Name	2020	2021	2022	2023	2024
NHPC	2.37	2.4	1.87	1.85	1.64
NTPC	0.87	0.87	0.74	0.81	0.74
SJVN	2.99	2.04	1.77	1.93	2.19

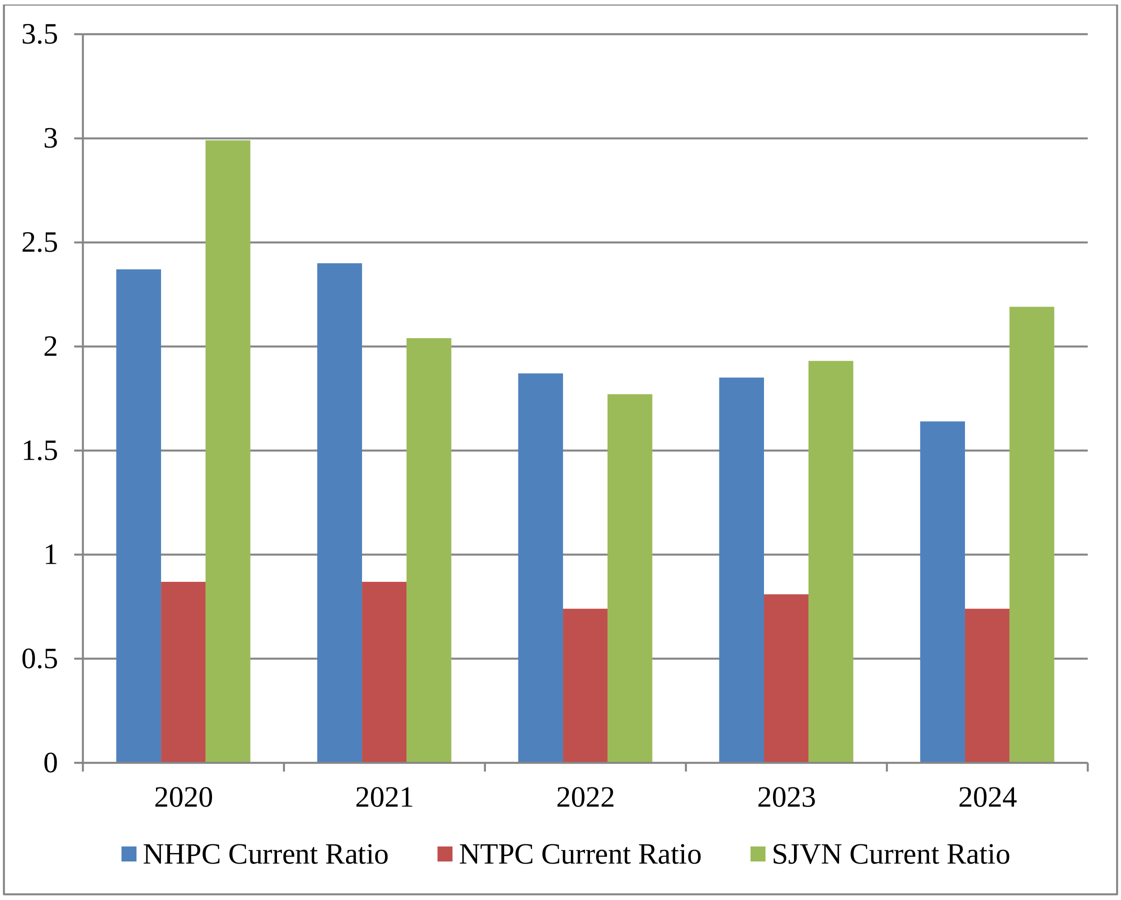

Figure 2: Current Ratio

The five-year data for NHPC, NTPC, and SJVN from 2020 to 2024 highlights the following trends:

- **NHPC** shows a gradual but consistent decline from 2.37 in 2020 to 1.64 in 2024. While the drop is not extremely steep, the continued downward trend suggests weakening performance that could stem from operational or financial challenges.
- **NTPC** has maintained a fairly stable performance, though slightly lower overall, fluctuating between 0.87 and 0.74. The figures indicate **stagnation** with no significant growth, which may point to limited expansion or subdued investor returns during this period.
- **SJVN** started strong at 2.99 in 2020 but dropped significantly to 1.77 in 2022. However, it shows signs of recovery in the following years, climbing to 2.19 in 2024. This suggests **a potential turnaround** and improving performance after an initial decline.

In summary, **SJVN** displays signs of recovery and potential future growth, **NHPC** is on a declining path that requires strategic intervention, and **NTPC** reflects stability but lacks momentum. Stakeholders may view **SJVN** as a company with improving prospects, while **NHPC and NTPC** may need focused efforts to enhance performance.

Table 3: Total Debt/Equity

Company Name	2020	2021	2022	2023	2024
NHPC	0.69	0.66	0.75	0.8	0.84
NTPC	1.41	1.38	1.33	1.33	1.24
SJVN	0.16	0.15	0.42	0.52	0.68

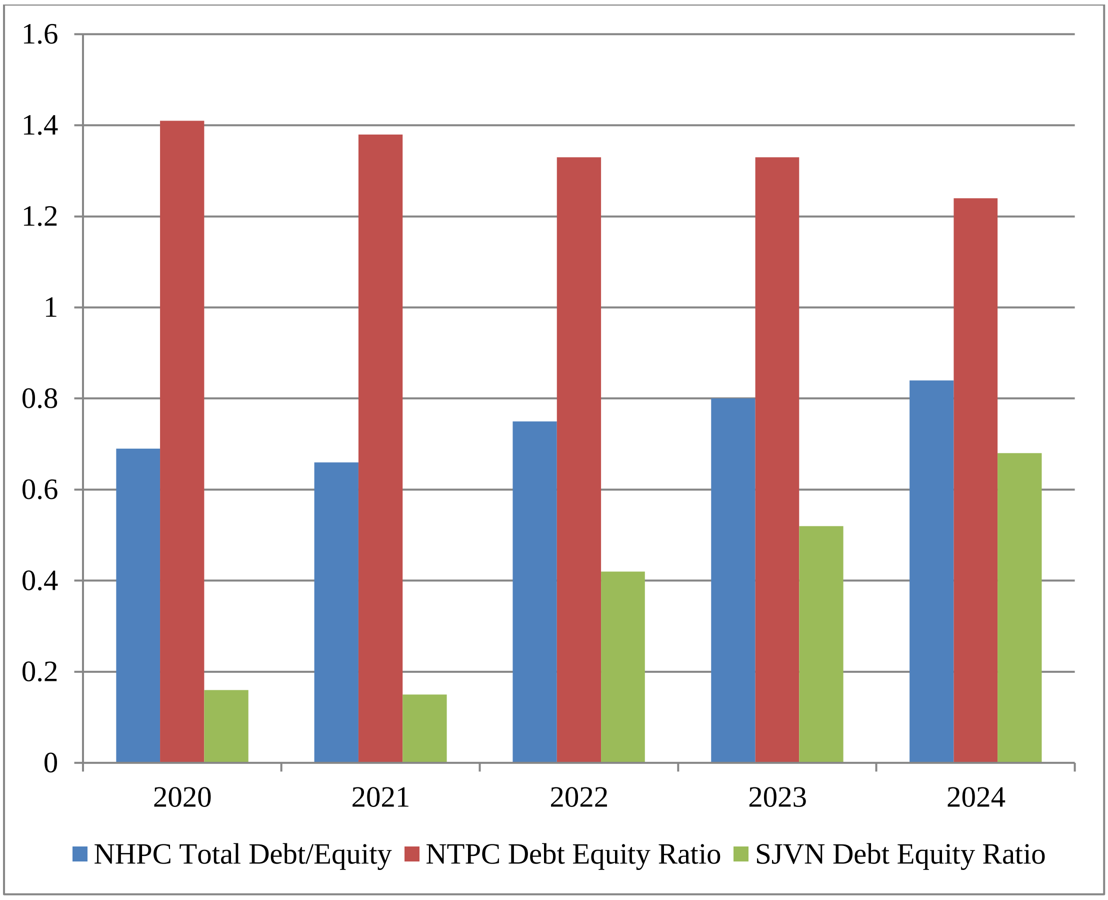

Figure 2: Total Debt/Equity

The data for NHPC, NTPC, and SJVN from 2020 to 2024 shows varied performance patterns across the three companies:

- **NHPC** has shown steady and consistent growth over the five-year period, rising from 0.69 in 2020 to 0.84 in 2024. This upward trend reflects gradual improvement and may indicate better efficiency, profitability, or operational performance.
- **NTPC** displays a slow but consistent decline, falling from 1.41 in 2020 to 1.24 in 2024. While still maintaining relatively higher values compared to its peers, the downward trend suggests slight weakening in performance that could be due to rising costs, regulatory challenges, or other operational factors.
- **SJVN** has exhibited the most significant growth, starting from a low base of 0.16 in 2020 and increasing to 0.68 in 2024. This sharp rise indicates rapid improvement and strong momentum, possibly due to expansion, increased efficiency, or new project successes.

In summary, **SJVN** has shown the most impressive growth and momentum, **NHPC** reflects stable and positive progress, while **NTPC**, despite having the highest initial value, shows a gradual decline that may warrant strategic review to maintain competitiveness.

Table 4: Net Profit of the Companies (in Crs. INR)

Company Name	2020	2021	2022	2023	2024
NHPC	2,884.92	3,257.00	3,523.57	3,889.98	3,624.42
NTPC	10,112.81	13,769.52	16,111.42	17,196.73	18,079.39
SJVN	1,566.76	1,645.61	989.8	1,359.30	911.44

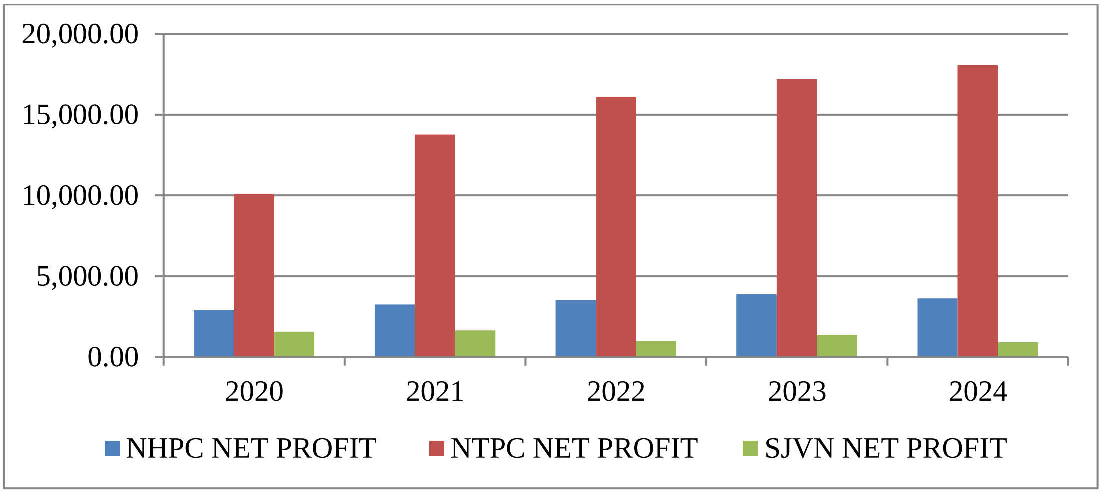

Figure 4: Net Profit of the Companies

The five-year data from 2020 to 2024 for NHPC, NTPC, and SJVN (presumably in crore ₹ or another large unit) reflects notable differences in scale, performance, and growth trends:

- **NHPC** shows a steady rise from 2020 (₹2,884.92 Cr) to 2023 (₹3,889.98 Cr), followed by a dip in 2024 (₹3,624.42 Cr). While the overall trend is positive, the decline in the final year may signal operational or market challenges that need attention.
- **NTPC** has demonstrated **strong and consistent growth**, increasing from ₹10,112.81 Cr in 2020 to ₹18,079.39 Cr in 2024. This represents a remarkable performance with a nearly **79% increase** over the period, indicating robust expansion, strong revenue streams, and operational efficiency.
- **SJVN** has shown **fluctuating performance**, with a peak in 2021 (₹1,645.61 Cr), a sharp drop in 2022 (₹989.8 Cr), partial recovery in 2023, and another drop in 2024 (₹911.44 Cr). The overall trend is **declining**, suggesting volatility and possible instability in operations or revenue generation.

Therefore, **NTPC** is the clear leader with strong, consistent growth and large-scale operations. **NHPC** has shown moderate growth with a recent decline, requiring caution and possible strategic realignment. **SJVN**, on the other hand, shows instability and a declining trend, highlighting the need for a focused turnaround strategy.

Conclusion

The overall financial analysis of NHPC, NTPC, and SJVN from 2020 to 2024 reveals distinct patterns in their liquidity, leverage, and profitability. NHPC has shown a gradual decline in both its quick and current ratios, indicating weakening short-term liquidity. Although its net profit increased steadily up to 2023, a dip in 2024 suggests emerging operational or market-related challenges. Additionally, its debt-to-equity ratio has risen over the years, pointing to increasing reliance on borrowed funds. This trend signals a need for strategic realignment to maintain financial stability.

NTPC stands out as the strongest performer among the three companies. Its quick and current ratios have shown modest but consistent improvement, reflecting solid liquidity management. Most notably, NTPC's net profit has grown significantly—from ₹10,112.81 crore in 2020 to ₹18,079.39 crore in 2024—demonstrating strong operational efficiency and effective management. Though its debt-to-equity ratio remains higher than its peers, the gradual decline over time indicates better debt control.

SJVN presents a mixed picture. It has shown substantial improvement in its quick and current ratios, and its debt-to-equity ratio has increased moderately from a very low base, suggesting a stronger capital structure. On the other hand, the company's net profit has fluctuated sharply, with a downward trend in recent years that raises concerns about earnings consistency. While SJVN is making progress in strengthening its financial fundamentals, it must focus on stabilizing and growing its profitability to ensure long-term sustainability.

Therefore, NTPC reflects robust financial health and consistent growth, NHPC shows moderate progress but faces declining liquidity and rising debt, while SJVN, despite improvements in liquidity and capital structure, needs to address volatility in its earnings to enhance overall performance.

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ENVIRONMENTAL SUSTAINABILITY INDICATORS AND THEIR IMPACT ON FINANCIAL PERFORMANCE IN THE FMCG SECTOR

Suraj Ratnoo*
Shalini Chasta**

ABSTRACT

This Research aimed to analyze the impact of carbon emissions, energy intensity, water usage, and waste management on the financial performance of 30 companies in the FMCG sector over the period of 2022–2024. The study used a quantitative framework to assess key financial measures, such as net profit (NP), revenue from operations (RO), and return on capital employed (ROCE), using panel data regression models and the Fixed Effect Method. The empirical findings showed that water use had a significant beneficial impact on both NP and RO, and that energy intensity and carbon emissions had a significant positive impact on NP. However, the study shows that there was no significant correlation observed between the waste management indicators and the financial performance measures. These results were further supported by the Fixed Effect Method, which showed strong R-squared values Demonstrating that all the explanatory variables together explain the variance in chosen dependent variables.

***KEYWORDS**: Sustainability Reporting, Carbon Emission, Energy Consumed, Water Consumption, Waste Management, SDG, BRSR, Financial Performance.*

Introduction

In today's rapidly evolving landscape, Understanding the connection between financial performance and environmental sustainability metrics has become increasingly important. As defined by the World Commission on Environment and Development (1987), sustainability refers to "meeting the current needs without compromising the ability of future generations to meet their own demand." Integrating environmental issues into corporate plans is not just morally but financially important as organizations face growing pressure from stakeholders for the adoption of sustainable practices, particularly in areas like Fast-Moving Consumer Goods (FMCG). As noted by KPMG (2020), 'Businesses that embrace sustainability not only meet stakeholder expectations but also enhance their financial performance by mitigating risks, reducing costs, and fostering innovation'. Indicators like the usage of renewable energy, the reduction of carbon emissions, waste management, and water use have significant effects on the financial results of a company. In the FMCG industry, evaluating the financial performance impact of these sustainability initiatives is essential for guiding long-term strategic planning, investment choices, and corporate policy. According to a study by Accenture (2021), Companies that

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systematically evaluate the financial effects of their sustainability initiatives are better able to make informed decisions and achieve sustainable growth, as these evaluations offer significant insight into the efficacy and financial advantages of their environmental strategies. Nowadays, companies have made significant progress in this area by reporting their carbon emissions in annual reports, as noted by Choiet al. (2013).

Companies are facing increasing demands to adopt sustainable practices to achieve a balance between financial success and environmental responsibility, given the Fast-Moving Consumer Goods (FMCG) sector's significant resource consumption and environmental effect. According to Deloitte (2022), "FMCG companies must strike a balance between economic performance and environmental stewardship, as the sector's high resource consumption and environmental impact demand them to integrate sustainability into their operations." This has led to more research into how practices like water conservation, waste management, and carbon emission reduction might improve a company's bottom line while also benefiting the environment. This study makes an effort to look into how energy, waste, and water usage affect business success. Comprehending this correlation facilitates the understanding of how sustainability might result in enhanced business performance and enhanced reputation. Within the field of environmental sustainability, one important issue that hasn't been fully explored is how practices like reducing energy use, managing waste, and saving water affect the financial performance of FMCG companies. While many agree that sustainability is important, the direct link between these environmental actions and a company's financial success isn't completely understood. The significance of environmental stewardship, protection, and restoration is emphasized in Principle 6 of the BRSR. This is in line with the SDGs (sustainable development goals) that are centered on environmental sustainability, and it is supported by the NGRBC (National Guidelines on responsible business conduct), which ensures that companies make a significant contribution to global sustainability initiatives (Figure 1).

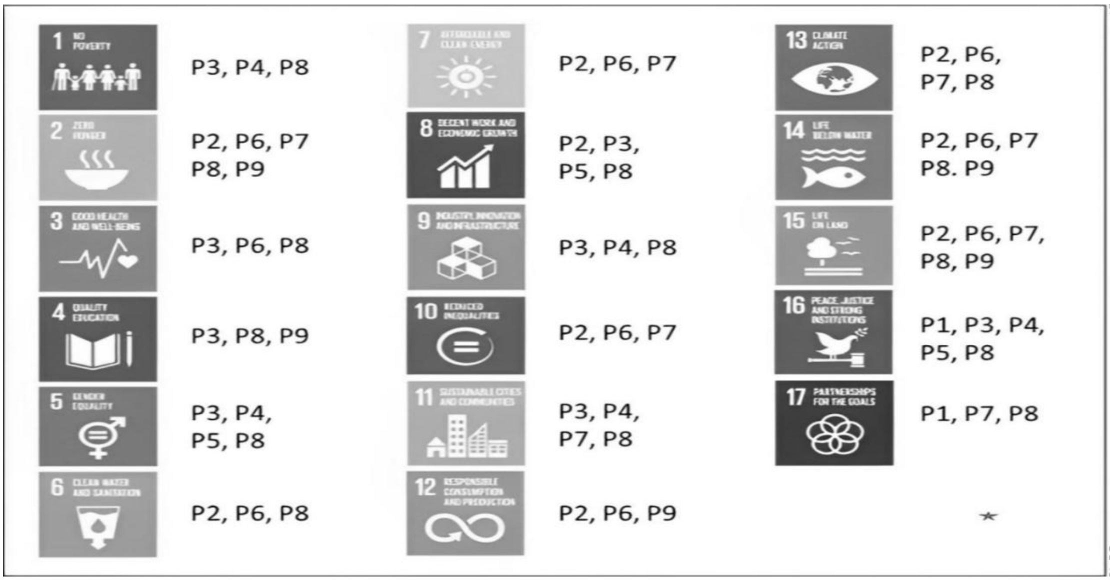

Figure 1: SDGs mapped against the NGRBC

Source: mca.gov.in

By examining information from the recent annual reports, this study seeks to clarify the relationship between environmental sustainability metrics and the financial performance of FMCG companies. The objective is to provide empirical evidence that can guide companies in aligning their environmental strategies with financial goals, ultimately contributing to more sustainable and profitable business practices. To establish a theoretical framework for comprehending the connection between sustainability and financial success, the study starts with a survey of the relevant literature. It then outlines the research methodology, including the selection of key sustainability indicators and financial metrics, and explains the data collection and analysis process. The results are analyzed about existing research, highlighting key findings and their implications. Finally, the paper concludes with recommendations for companies.

Literature Review

- **Previous Research on the impact of Environmental indicators and Financial Performance Association**

The effect of environmental practices on the financial performance of a business has been the subject of recent studies. Some studies have produced a range of findings depending on the particular methods under study. The assessment of how well a business makes use of its resources and produces income is known as financial performance (Emmanuel et al., 2024). Environmental sustainability refers to managing ecosystems and resources to meet present demand without jeopardizing future generations' ability to meet their own demands. According to Gull et al. (2022), Companies' environmental performance and financial performance are positively correlated. Similarly, Qian & Xing (2016) showed a positive correlation between privately held companies' financial and environmental performance. Dan Ritu Chawla (2021), Dutta et al. (2019), and Suyudi et al. (2020) also supported that environmental sustainability is significantly and favorably impacted by environmental accounting. Ibarra et al. (2021) also highlighted that firms engaging in ESG practices generally experience improved financial performance. Hart (1997) argued that many firms in developed nations are going sustainable because they understand that while pollution may be reduced, earnings can be increased instantly. Digital technology has also an impact on sustainability accounting and reporting, affecting how sustainability is measured. The findings reveal that digital technologies significantly influence sustainability accounting (Vărzaru, 2022). Additionally, Ren & Li (2023) demonstrated that digital transformation has a positive impact on the financial performance of renewable energy firms in China. According to Isti et al. (2023), there is proof that innovative environmental accounting techniques help reduce carbon emissions and promote the Sustainable Development Goals (SDGs).

Simionescu et al. (2020) found that total waste harms performance on all fronts, whereas total energy consumption has no adverse effect on a firm's performance. Nonetheless, overall water use has a favorable impact on return on assets but a negative one on price-to-book value. According to Shin et al. (2018), businesses that use a lot of renewable energy outperform their rivals financially. Dura and Suharsono (2022) showed that financial performance has a favorable influence on sustainable development, while sustainable development is not greatly impacted by financial performance. whereas Dincer et al. (2023) discovered that sustainability reporting positively influences financial performance according to the ROA model. Finally, Emmanuel et al. (2024), found that there is a positive but insignificant relationship between the financial performance of Nigerian banks and environmental sustainability disclosures, which include information on renewable energy, CE, WT, and WA.

- **Previous Research on the Influence of Carbon Emission, Energy Consumption Water and Waste on Firm Performance**

Table 1: An overview of previous studies on the effect of carbon emissions & the financial performance of corporations

Author(s)	Time Spam	Sample Size	Method	Variables	Outcome
College of Business and Economics, Qatar University (2024)	2015-2023	50 companies in Qatar	Econometric analysis	Carbon emission disclosure and financial performance	Carbon emission disclosure enhances financial performance
Ghosh, Pareek, &Sahu (2023)	2010-2020	120 global companies	Non-linear regression models	Carbon performance, carbon disclosure, financial performance	Carbon performance anddisclosure have anon-linear relationship with financial performance
Emmanuelet al. (2023)	2010-2022	30 Nigerian financial services companies	Panel data regression	Carbon emission disclosure and financial performance	The relationship between carbon emission disclosure and financial performance is Positive

Gallego- Álvarez etal. (2015)	2000-2013	500 international companies	Regression analysis with panel data	Carbon emission reduction, financial performance, and operational performance	Financial and operational performance is improved by reduction in carbon emission

Table 2: An overview of previous studies on the effect of Energy Consumption & the financial performance of corporations

Author(s)	Time Spam	Sample Size	Method	Variables	Outcome
Shukla & Saini (2022)	2000-2017	Not specified	Statistical analysis using correlation and regression models	Forest fire incidents, climate, and anthropogenic factors	Climate factors significantly influence forest fire incidents
Jain & Kaur (2021)	2008-2015	100 firms in the Indian metallic industry	Firm-level econometric analysis	Energy intensity, firm size, capital intensity, energy prices	Larger firms Show lowerenergy intensity trends
Shin et al.(2016)	1990-2010	1,000 firms across various industries	Empiricalanalysis using regression models	Renewable energy utilization, financial performance metrics	Renewable energy utilization leads to betterfinancial performance

Table 3: An Overview of Previous Studies on the Effect of Water Management & the Financial Performance of Corporations

Author(s)	Time Spam	Sample Size	Method	Variables	Outcome
Moreno (2024)	2018-2022	20 water management companiesin Spain	Quantitative and technological analysis	Financial performance, sustainability indicators	Financial performance and sustainability are closely related in water management companies
Weber & Saunders-Hogberg (2020)	2005-2018	200 food and beverage companies	Econometric analysis	CSR, water management, and financial performance	Financial Performance is positively influenced by Water management in the foods and beverage industry
Raj (2015)	2000-2014	50 metal mining firms	Empirical analysis of water accounting data	Water risk, water accounting, financial performance	Corporate water risk negatively affects financial performance in metal mining firms

Table 4: An Overview of Previous Studies on the Effect of Waste Management & the Financial Performance of Corporations

Author(s)	Time Spam	Sample Size	Method	Variables	Outcome
López-Cabarcos et al. (2024)	2010-2020	150 food companies	Econometric analysis with panel data	Water management and waste management strategies and	Effective water management and waste management strategies enhanced

				financial performance indicators	the financial performance in food companies
Etuk, Emenyi, & Ekanem (2024)	2012-2022	50 listed consumer goods firms in Nigeria	Panel data regression analysis	Environmental waste management disclosure, financial performance	Waste management disclosure positively correlates with financial performance
Ali Gull etal. (2022)	2005-2020	300 companies across multiple countries	Empirical analysis using regression models	Waste management practices, firm financial performance metrics	Globally, Waste management positively affects firm performance
Kornom-Gbaraba & Chukwuemeka (2022)	2010-2020	40 quoted oil companies in Nigeria	Econometric analysis	Waste management cost disclosure, corporate financial performance	Waste management cost disclosure impacts financial performance positively
Bogdan etal. (2022)	2005-2020	100 companies in EU	Correlation and regression analysis	Waste management information disclosure and financial performance	Waste management disclosure behavior is linked to better financial performance

After analyzing the specific characteristics of the literature, the following hypotheses are proposed:

***H01**: There is no significant relationship between environmental performance metrics (EPM) and NP.*

***H1**: There is a significant relationship between EPM (CE1,CE2, E1, E2, WT1, WT2, WA1, WA2) and NP.*

***H02**: There is no significant relationship between EPM and RO.*

***H2**: There is a significant relationship between EPM (CE1, CE2, E1, E2, WT1, WT2, WA1, WA2) and RO.*

***H03**: EPM have no significant impact on the ROCE.*

***H3**: EPM (CE1, CE2, E1, E2, WT1, WT2, WA1, WA2) significantly affect the ROCE.*

Research Methodology

- **Selection of Sample, Data Collection & Analysis Methods**

The objective of the study is to explore the relationship between environmental practices and financial performance among 30 leading Fast-Moving Consumer Goods (FMCG) companies. The analysis focuses on the financial years 2021-22, 2022-23, and 2023-24, providing a balanced panel dataset. The required data for the dependent and independent variables were meticulously extracted from the annual reports of each company, which were downloaded directly from their official websites.

To analyze the data, Initially, basic statistical descriptive and correlation analyses were carried out. Later, we employed two econometric techniques: "**Pooled Ordinary Least Squares (Pooled OLS)**" and the "**Fixed Effect Model**". Pooled OLS was used as a baseline model to evaluate the impact of the explanatory variables on the explained variables across all companies, assuming homogeneity across entities. The Fixed Effect Model was then applied to check the overall fitness of the model. The use of balanced panel data, where each company is observed across all three years, enhances the reliability of our findings by ensuring consistent comparisons over time. The analysis was conducted using Eviews statistical software that efficiently handles panel data, ensuring robust and credible results.

Table 5: Variables' Descriptions

Variable Type	VariableName	Unit of Measurement	Variable Code	Formula
DependentVariable	Revenue from Operation	Crores (₹)	RO	-
DependentVariable	Return on Capital Employed	Percentage (%)	ROCE	-
DependentVariable	Net Profit	Crores (₹)	NP	-
Independent Variable	Total Carbon Emission (Scope 1 and 2)	tCO_2e	CE1	-
Independent Variable	Total Carbon Emission intensity per rupee of Turnover	tCO_2e/₹ Crore	CE2	CE2= Total carbon emission / Revenue from Operation
Independent Variable	Total Energy Consumed	Gigajoule (GJ)	E1	-
Independent Variable	Energy intensity per rupee of Turnover	GJ/₹ Crore	E2	E2= Total energy consumed/ Revenue from Operation
Independent Variable	Total Volumeof Water Consumption	Kiloliters (KL)	WT1	-
Independent Variable	Water intensity per rupee of Turnover	KL/₹ Crore	WT2	WT2= total volumeof water consumption / Revenue from Operation
Independent Variable	Total Waste Generated	Metric Tonnes (MT)	WA1	-
Independent Variable	Waste intensity per rupee of Turnover	MT/₹ Crore	WA2	WA2= total Waste Generated/Revenue from Operations

- **Quantitative Framework**

Our quantitative method was based on panel data regression models, which is consistent with existing research. We utilized pooled ordinary least squares to construct the following regression models, aiming to analyze the impact of energy, water, waste, and carbon emissions on a company's financial performance.

- **Model 1**

$$NP=\beta 0+\beta 1CE1+\beta 2CE2+\beta 3E1+\beta 4E2+\beta 5WT1+\beta 6WT2+\beta 7WA1+\beta 8WA2+\epsilon$$

- **Model 2**

$$RO=\beta 0+\beta 1CE1+\beta 2CE2+\beta 3E1+\beta 4E2+\beta 5WT1+\beta 6WT2+\beta 7WA1+\beta 8WA2+\epsilon$$

- **Model 3**

$$ROCE=\beta 0+\beta 1CE1+\beta 2CE2+\beta 3E1+\beta 4E2+\beta 5WT1+\beta 6WT2+\beta 7WA1+\beta 8WA2+\epsilon$$

The financial performance indicators NP, RO, and ROCE are the dependent variables. The intercept (β0) of the model indicates the predicted value of the explained variable when all explanatory variables are zero. The explained variable's change for every unit change in the associated explanatory variable is represented by the coefficients (**β1 to β8)** of the explanatory variables. The change in the dependent variable that the independent variables cannot explain is represented by the error term (ϵ).

Findings and Discussion

- **Summary of Descriptive Statistics and Correlation Analysis**

Table 6: Descriptive Statistics

Statistic	Observations	Mean	Std. Dev.	Maximum	Minimum
NP	90	1492.799	3592.657	20421.97	-529.15
RO	90	10574.04	16939.19	70251.28	216.25
ROCE	90	29.166	31.55919	145.2	-96.37
CE1	90	3,46,858.30	10,14,727	57,03,184	0
CE2	90	43.44333	123.9205	733.0053	0
E1	90	52,39,352	1,23,90,969	6,28,81,553	4,803.00
E2	90	738.3399	1,757.17	7,619.92	4.963264
WT1	90	21,59,528	54,30,033	4,36,58,090	5,478.00
WT2	90	290.2783	512.9432	2,621.94	5.660787
WA1	90	62,094.51	1,58,895.80	7,30,000.00	0.56
WA2	90	4.024781	8.647466	57.37127	0.001854

Source: Author's analysis

According to the descriptive statistics for the variables under analysis, the 90 observations' financial performance and environmental sustainability show significant variation. In terms of financial metrics, NP varies between -529.15 and 20,421.97, with a substantial standard deviation of 3,592.657. These figures show notable variations in profitability amongst organizations. Similar to this, RO displays a wide range of asset returns, from a high of 70,251.28 to a low of 216.25, with an average of 10,574.04 and a standard deviation of 16,939.19. ROCE, which ranges from 145.2 to -96.37, shows variability as well. Its mean is 29.166, and its standard deviation is 31.55919. This means that while some businesses have great capital returns, others suffer from negative returns.

Variables related to environmental sustainability vary much more. Wide variations in emissions and energy consumption are indicated by the means of Carbon Emission 1 (CE1) and Energy Consumption 1 (E1), which are 3,46,858.30 and 52,39,352, respectively, with high standard deviations. The maximum and minimum values of these variables are 57,03,184 for CE1 and 6,28,81,553 for E1, respectively. In the same way, Water Consumption 1 (WT1) ranges from 4,36,58,090 to 5,478.00, with a mean of 21,59,528 and a standard deviation of 54,30,033. The Waste Management 1 (WA1) data illustrates the variations in waste management procedures, with many organizations reporting very little activity. The mean is 62,094.51, while the standard deviation is 1,58,895.80. These figures highlight the various strategies used by businesses to manage their financial performance as well as their environmental impact, demonstrating the sample's wide range of sustainability and efficiency.

Table 7: Correlation Matrix

Variables	RO	ROCE	NP	CE1	CE2	E1	E2	WT1	WT2	WA1	WA2
RO	1										
ROCE	0.356	1									
NP	0.823	0.355	1								
CE1	0.19	-0.101	0.184	1							
CE2	-0.085	-0.07	-0.062	-0.02	1						
E1	0.262	-0.084	0.288	0.882	-0.038	1					
E2	-0.052	-0.022	-0.036	-0.036	-0.056	-0.044	1				
WT1	0.371	-0.021	0.354	0.444	-0.055	0.461	-0.043	1			
WT2	0.371	0.051	0.735	0.251	-0.065	0.317	-0.043	-0.06	1		
WA1	-0.091	-0.067	-0.066	-0.053	0.925	-0.067	-0.06	0.496	0.6	1	
WA2	0.624	0.051	0.735	0.251	0.316	0.496	-0.04	-0.07	0.496	-0.059	1

Source: Author's analysis

The correlation matrix illustrates the main relationships between environmental and financial factors. It is suggested that improved asset utilization results in higher profitability by the substantial positive correlation (0.823) between RO and NP. Similarly, although the correlation is not very strong, there is a moderate positive correlation (0.356) between RO and ROCE, showing that both profitability indicators tend to move together. Profitability and efficient capital use are closely related, as evidenced by the correlation coefficient of 0.355 between ROCE and NP.

The carbon emission indicators indicate a small positive correlation (0.19) between CE1 and RO, indicating a marginally significant relationship between higher carbon emissions and better asset returns. On the other hand, CE2 shows a small negative association (-0.085) with RO, suggesting that higher emissions could marginally reduce returns. Interesting patterns can also be seen in the energy intensity variables. For example, E1 and RO have a positive correlation of 0.262, suggesting that increased energy efficiency may improve asset performance. While there is a poor negative correlation (-0.052) between E2 and RO, it is clear that energy intensity and carbon emissions are closely related. Additionally, there is a weak positive connection (0.882) between E1 and CE1.

The water intensity indicators show that WT1 and RO have a somewhat positive association (0.371), suggesting that better asset returns may be a result of efficient water management. Businesses with greater water intensity measures are probably going to be more profitable, according to the substantial correlation (0.735) between WT2 and NP. Furthermore, WT1 and WA1 have a moderately positive correlation (0.496), indicating the interdependence of waste and water management techniques. Additional waste management variables reveal a significant correlation between WA1 and CE2 (0.925), suggesting a close relationship between waste management efforts and carbon emission levels. The strong positive correlation of 0.735 between WA2 and NP indicates that businesses that implement efficient waste management strategies typically have higher profitability.

- **Results of Panel Data Regression Models**

Table 8: Summary of Results of Pooled OLS Method

Variable	“Net Profit” (NP)	Return on Operations (RO)	Return on Capital Employed (ROCE)
C (Constant)	**Significant** (p = 0.0000)	**Significant** (p = 0.0000)	**Significant** (p = 0.0000)
CE1	**Significant** (p = 0.0034)	Not Significant (p = 0.3691)	Not Significant (p = 0.6811)
CE2	**Significant** (p = 0.0171)	Not Significant (p = 0.1234)	Not Significant (p = 0.4258)
E1	**Significant** (p = 0.0048)	Not Significant (p = 0.3172)	Not Significant (p = 0.5606)
E2	**Significant** (p = 0.0179)	Not Significant (p = 0.3235)	Not Significant (p = 0.4877)
WT1	Not Significant (p = 0.2367)	Not Significant (p = 0.8674)	Not Significant (p = 0.5831)
WT2	Not Significant (p = 0.9688)	Not Significant (p = 0.4362)	Not Significant (p = 0.4856)
WA1	**Significant** (p = 0.0000)	**Significant** (p = 0.0029)	Not Significant (p = 0.3426)
WA2	**Significant** (p = 0.0000)	**Significant** (p = 0.0029)	Not Significant (p = 0.8276)”
R-squared	0.834456	0.616851	0.140228
Adjusted R-squared	0.818106	0.579009	0.055312
F-statistic (p-value)	**Significant** (p = 0.0000)	**Significant** (p = 0.0000)	Not Significant (p = 0.123301)

Source: Author’s analysis

- **Pooled OLS Method:** The results of the panel data pooled OLS regression analysis give significant new information about the connection between measurements of financial performance and environmental sustainability. Multiple factors for Net Profit (NP) were determined to be statistically significant. Strong baseline impact is indicated by the constant term (C), which is highly significant (p = 0.0000). Carbon Emissions 1 (CE1) and 2 (CE2) exhibit significant p-values of 0.0034 and 0.0171, respectively, indicating a significant impact of carbon emissions on net profit. It is evident from the significant results for Energy Consumption 1 (E1) and Energy Consumption 2 (E2) (p = 0.0048 and p = 0.0179) that energy use affects profitability. Waste management techniques are essential for profitability, as evidenced by the significance of Waste Management 1 (WA1) and Waste Management 2 (WA2) (both p = 0.0000). The model describes a considerable amount of variability in NP, as shown by the R-squared value of 0.834456 and the Adjusted R-squared of 0.818106. The robustness of the model as a whole is further supported by the highly significant (p = 0.0000) F-statistic.

Additionally noteworthy (p = 0.0000) is the constant term (C) for Return on Operations (RO). Nevertheless, in contrast to NP, it was discovered that none of the environmental variables (CE1, CE2, E1, E2, WT1, WT2) were statistically significant, suggesting that these variables do not have a direct influence on RO. The waste management processes have some effect on RO, as indicated by the p-values of 0.0029 for Waste Management 1 (WA1) and Waste Management 2 (WA2). These are the only significant variables. Overall, the model is statistically significant according to the F-statistic, which is significant (p = 0.0000), and the R-squared value of 0.616851 and Adjusted R-squared of 0.579009, which point to a satisfactory fit.

Return on capital employed (ROCE) constant term (C) is significant (p = 0.0000); all other variables, including environmental considerations and waste management strategies, are not significant, suggesting that these factors do not directly influence ROCE in this model. The model is unable to adequately explain the variability in ROCE based on the low R-squared value of 0.140228 and the even lower Adjusted R-squared of 0.055312. Additionally, the model may not be statistically significant in predicting ROCE overall based on the F-statistic (p = 0.123301), which is not significant.

- Results of Fixed Effect Method

Table 9: Summary of Results of Fixed Effect Method

Dependent Variable	Model	R-squared	Adjusted R-squared	S.E. of Regression	Durbin-Watson Stat	F-statistic	Prob (Fstatistic)
NP	Model 1	0.986	0.975	562.572	2.023	91.786	0
RO	Model 2	0.994	0.99	1711.33	2.47	222.303	0
ROCE	Model 3	0.9	0.822	13.307	2.166	11.555	0

Source: Author's analysis

All three models—NP, RO, and ROCE—have good explanatory power based on the findings of the fixed effects model used in the panel data regression.

Model 1 looks at Net Profit (NP) as the explained variable. Its R-squared score of 0.986 demonstrate that the model provides excellent data fit, explaining 98.6% of the variation in NP. Similar to this, the Adjusted R-squared is high at 0.975, reflecting that the model is still reliable even after considering the number of predictors. With a standard error of regression of 562.572, it is comparatively low, and the Durbin-Watson statistic of 2.023 shows that there are no significant problems with autocorrelation. The model's overall significance is validated by the significant F-statistic (91.786) and p-value of 0. These findings suggest that Environmental indicators have significant impact on NP, leading to rejection of Null hypothesis (H01).

Model 2, which focuses on Return on Operations (RO), has an even better R-squared value of 0.994, reflecting that the model explained 99.4% of the variability in RO. Again, this shows a very good model fit: the Adjusted R-squared is 0.99. The model appears to handle autocorrelation well, as evidenced by the Durbin-Watson value of 2.47 and the standard error of regression of 1,711.33. With a p-value of 0 and a relatively high F-statistic of 222.303, the model is statistically significant and explains a considerable portion of the variation in RO, resulting in the rejection of null hypothesis (H02).

Although it performs marginally worse than the first two models, Model 3, which looks at Return on Capital Employed (ROCE), likewise demonstrates high performance. With an R-squared of 0.9, the model explained 90% of the variability in ROCE. Even though it is lower, the Adjusted R-squared of 0.822 still points to a strong fit. There are no appreciable problems with autocorrelation, as evidenced by the Durbin-Watson statistic of 2.166 and the standard error of regression of 13.307. The F-statistic of

11.555 and p-value of 0, indicate that the model is statistically significant, indicating the rejection of Null Hypothesis (H03).

NP, RO, and ROCE variation are all well explained by the fixed effects model overall, with NP and RO fitting the data exceptionally well and ROCE having a good fit.

Conclusion

As a result, this study has carefully investigated the connection between environmental sustainability metrics and financial performance in the FMCG sector. The study concentrated on important sustainability indicators and how they affected important financial results including net profit, revenue from operations, and return on capital invested. These metrics included carbon emissions, energy intensity, water usage, and waste management. According to the research, businesses that promote environmental sustainability tend to be more profitable and have more efficient operations. These findings highlight the subtle but significant relationship between environmental practices and financial success.

This research is significant because it can help the FMCG business close the gap between sustainability and profitability. Businesses that successfully mitigate their environmental effect through lower emissions, more economical energy use, and careful waste and water management are more likely to experience favorable financial outcomes, which strengthens the business case for sustainability.

Looking ahead, more research must be done on different aspects of sustainability that have an impact on financial performance in various industries. Industry practitioners can also think about incorporating these results into their strategy planning to make sure that financial objectives and environmental practices are in line. Businesses can accomplish sustainable growth in this way, which is advantageous to their bottom line and the environment.

Practical Implications

The study's conclusions have important implications for theory and practice, one of which is understanding the role of sustainability in corporate performance. The study's findings could potentially broaden the existing body of knowledge regarding the effects of carbon emission, energy consumption, water management, and waste management practices on the financial performance of FMCG companies. The research indicates that these environmental elements have a major impact on important financial measures including revenue, return on capital employed, and net profit by evaluating data from thirty companies over three years. It can help in better understanding how environmental practices affect financial performance by concentrating on particular environmental activities rather than just overall sustainability scores.

In practical terms, managers and investors in the FMCG industry can benefit from the studies' insightful recommendations. Considering that the study discovered a significant correlation between financial performance and environmental practices, businesses have to think about including waste, energy, and water management improvements in their overall business plans. As a result, the company's reputation among stakeholders may improve and financial outcomes may improve. By evaluating a company's environmental practices alongside its financial health, investors can also use this information to make more informed judgments. Ultimately, integrating sustainable business practices into operations promotes long-term success by helping organizations meet their environmental objectives and improve their financial performance.

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INTEGRATING BUSINESS INTELLIGENCE INTO MANAGEMENT PRACTICES: CHALLENGES AND OPPORTUNITIES

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ABSTRACT

Business Intelligence (BI) is becoming an essential component of management practices across industries. It leverages data analytics, AI, and reporting tools to assist managers in making informed decisions. This paper explores the integration of BI into management practices, highlighting key challenges and emerging opportunities. The research is grounded in a comprehensive review of current BI technologies and management frameworks. The findings suggest that while BI offers immense potential for data-driven decision-making, the integration process is fraught with challenges related to technology adoption, data quality, and organizational culture.

KEYWORDS: *Bigdata, Data Analytics, Data-Driven Decision-Making, BI Adoption Barriers, Machine Learning in BI.*

Introduction

Business Intelligence (BI) refers to technologies, applications, and practices for collecting, integrating, analyzing, and presenting business information. It is increasingly seen as a critical tool for improving decision-making across organizational levels. This paper seeks to explore the integration of BI into management practices, addressing both the opportunities and challenges that organizations face in adopting BI tools.

Literature Review

Evolution of Business Intelligence

BI has evolved from traditional reporting and descriptive analytics into more advanced capabilities like predictive and prescriptive analytics. Initially focused on retrospective analysis, BI now empowers businesses with real-time data processing, machine learning, and AI-driven insights. These innovations have influenced management styles, encouraging data-driven cultures.

Davenport, T. H., & Harris, J. G. (2007) Competing on Analytics: The New Science of Winning. The book discusses how companies use analytics to gain competitive advantages and the role of BI in strategic decision-making.[1]

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One paper by Chen, H., Chiang, R. H. L., & Storey, V. C. (2012) provides an overview of the evolution of business intelligence, from traditional data reporting to advanced analytics. [2]

BI in Management Practices

BI tools support various management practices such as strategic planning, performance measurement, and operational decision-making. Wixom, B. H., & Watson, H. J. (2010) explores how organizations structure themselves around business intelligence systems. [3]

Sharma, R., &Djiaw, V. (2018) are of the view that managers rely on dashboards, reporting tools, and predictive analytics to forecast trends, optimize operations, and improve customer satisfaction. Several management theories, including Decision Theory and Performance Management, have been adapted to incorporate BI technologies.[4]

Opportunities of Integrating BI into Management

- **Enhanced Decision-Making**

One of the most significant opportunities of BI is its capacity to improve decision-making. By offering data-driven insights, managers can make more accurate and timely decisions, reducing reliance on intuition and subjective judgments. BI systems integrate data from different departments, creating a single source of truth that helps align organizational goals with market demands.[5]

- **Real-Time Data Analysis**

BI enables real-time monitoring of key performance indicators (KPIs), providing managers with immediate feedback on business performance. This allows companies to react faster to market changes, optimize operations in real-time, and foresee potential challenges.[6]

- **Competitive Advantage**

Organizations integrating BI into their management processes are more likely to gain a competitive edge. BI tools allow for deeper insights into customer behavior, supply chain efficiencies, and competitor analysis. Leveraging these insights fosters innovation and helps businesses stay ahead in a dynamic market.

- **Improved Efficiency and Productivity**

BI tools streamline management processes by automating data collection and analysis. Managers can access intuitive dashboards and reports, reducing the time spent on data gathering and reporting, and focusing more on strategic initiatives.

Challenges of Integrating BI into Management

- **Data Quality and Integration**

The effectiveness of BI is highly dependent on the quality of data being analyzed. Poor data quality, incomplete data, or siloed data sources can undermine the benefits of BI tools. Many organizations face challenges in integrating disparate systems and ensuring data consistency.

- **Organizational Resistance**

Adopting BI systems often requires a cultural shift within an organization. Managers and employees accustomed to traditional decision-making methods may resist BI tools. Resistance can stem from a lack of understanding, fear of transparency, or reluctance to rely on data-driven decisions over intuition.[7]

- **High Implementation Costs**

BI technologies require substantial financial and human resources for implementation. This includes investments in software, hardware, data storage, and skilled personnel. Small and medium-sized enterprises (SMEs), in particular, may find it challenging to adopt comprehensive BI systems due to cost constraints.[8]

- **Skill Gaps**

Effective use of BI tools demands specific technical and analytical skills that many organizations lack. The shortage of skilled personnel who can interpret complex data, manage BI systems, and apply insights to business strategies presents a significant barrier to BI integration.

Case Studies of BI Integration in Management

- **Amazon's Use of Predictive Analytics**

Amazon has been at the forefront of BI integration, particularly in predictive analytics. The company's use of BI to analyze customer behavior, predict trends, and optimize the supply chain has been critical to its operational efficiency and customer satisfaction.

- **Walmart's Data-Driven Supply Chain Management**

Walmart leverages BI for inventory management, using real-time data to predict demand and manage supply chains efficiently. This has helped reduce costs and ensure product availability across stores.

- **Procter & Gamble's Performance Management**

Procter & Gamble (P&G) utilizes BI to monitor and manage employee performance. Through dashboards and KPI monitoring, P&G has enhanced productivity and created a transparent performance evaluation system that aligns individual goals with corporate objectives.

Best Practices for BI Integration in Management

- **Aligning BI with Business Strategy**

For successful BI integration, organizations must align BI initiatives with their strategic goals. Clear objectives and metrics should be established to measure BI's impact on business outcomes.

- **Fostering a Data-Driven Culture**

Building a data-driven culture is essential for the long-term success of BI integration. This requires training employees, encouraging data literacy, and promoting an open-minded approach to data-driven decision-making.

- **Incremental Implementation**

Instead of implementing BI in one go, organizations should adopt a phased approach. Incremental implementation allows companies to test BI tools, refine processes, and address challenges before expanding across the organization.

Conclusion and Future Directions

The integration of Business Intelligence into management practices presents both challenges and opportunities. While BI offers significant advantages in terms of decision-making, real-time insights, and operational efficiency, the path to successful integration is not without hurdles. Organizations must address issues such as data quality, organizational resistance, and skill gaps to fully realize the benefits of BI. Moving forward, advances in AI and machine learning will further enhance BI capabilities, enabling more proactive and autonomous decision-making.

Future research should focus on exploring industry-specific challenges and the impact of emerging BI technologies on management practices.

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9. This structure provides an in-depth exploration of the challenges and opportunities of integrating BI into management practices. Each section highlights key aspects, with case studies showcasing real-world applications.

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A STUDY ON AWARENESS AND ATTITUDE OF COLLEGE GOING STUDENTS TOWARDS OF TOILETRIES PRODUCTS IN AVADI, CHENNAI

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ABSTRACT

In generally the use of the toiletry facilities in rural areas is questionable in cities to facilitate like toiletries products are not use properly. In particular the college going students do not aware about this kind of attitude. The main reason is their lack of understanding about these things. Now, the variety of toiletry products are showing in the market place and also the online marketing also but only thing is that how to enhances by the college going students. In this paper shows a study on awareness and attitude of college going students towards of toiletries products in avadi, Chennai.

***KEYWORDS**: Awareness, Attitude, Rural Areas, Online Marketing, Toiletries Products.*

Introduction

In the current scenario the use of toilet and toiletry products is considered a new model, generally all people in urban areas understand this situation very clearly and particularly experience it in the name of compulsion because they did not have the same external conditions as in rural areas. Now, the social medias which is available a day is taking part and teach them toiletry products knowledge about the use of toiletry products to all people and creating a new awareness. Now-a-days not only this college students who are studying in college or college going students do not have a proper understanding of such toiletry products and how to them because their parents take care of all this and they also earn money. In currently there are many disposable products that can be sold in the market that can purify waste. It is something that needs to be investigated, whether the college students are learning about them by looking at social medias. Whatever things this paper shows the awareness and attitude college going students towards toiletry products in avadi, in Chennai.

Students Attitude

In recent days the college going students' attitude is entirely different manners they can engaging any kind of developing aspects like learning additional courses and coding systems, searching jobs opportunities, related with our own field. Some people to working about out of part time working depends on the courses. They are like only the learning and earning process in between the time they can involving academic performance and improving capabilities of the academic level moving in future.

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The majority of the college going students is to enlarge the motivation aspects. They want to motivate by the parents and society an academician etc., and build up their carrier operations. In many people is to enhance the new technology updating aspects only. Most of the people to reflect the technology-oriented courses and technology-oriented innovations, like engineering and arts and science students were adapted in this kind of operations in our day-to-day life.

Students Awarenes

Now the 2k kids of the students are well aware about the different field experts.They enhance the online platforms towards different social medias like you tube, what Sapp, face book and other type of social represent medias. In addition, mental and health awareness among the student's community is little-bit moderate level, because now they searching job and other knowledge sharing activities to base of this platform. In many of the students to collect knowledge sharing centre, good understanding among the teachers, family members and other friends and relatives. In alternatively majority of the students to utilize full in the campus resources among the develop our self towards the campus drive.

Objectives

- To study the purchase intention of consumer for a brand of toiletry products.
- To explore the factors resulting into brand building among consumers for toiletry products.

Research Methodology

The research study is descriptive in nature, using both primary and secondary data, primary data collected from structured questionnaire and secondary data collected from various books, journals, magazines, and various published and unpublished sources.

Sampling Technology

In this research study is based on the primary and secondary data research title, the researcher to adopt the sampling techniques of the study. In this research study is simple random sampling is used as a sapling technique.

Sampling Design

In Chennai avadi is one of the industrially and educationally very forward regions of Chennai. In this research study taken from this area, it has been 20 colleges are there in this field which is including arts and science, engineering technology and educational institutes are there in this avadi regions. The researcher has taken 300 sampling size as a sampling design of this study.

Table 1: Demographic Profile of the Respondents

S. No	Variable	Frequency	Percentage
1. Age	Upto 20 years	180	60
	20-25 years	120	40
Total		300	100
2. Gender	Male	110	36
	Female	190	64
Total		300	100
3. Education	U.G	210	70
	P.g	80	30
Total		300	100
4. Occupation	Student	240	80
	Service man	60	20
Total		300	100

Source: Primary Data

The above table no.1 shows the demographic profile of the respondents in avadi, the age of the respondents upto 20 years the 180 respondents among the 20 years (60%) and 20-25 years 120 responders were form 20-25 years (40). The gender of the respondents 110 respondents among the male categories (36%) and 190 responders were form female category (64%).And education of the respondents 210 respondents among the upto under graduate level (70%) and 80 respondents were among the post graduate level of the respondents (30%). Occupation of the respondents the 240 respondents among the student category (80%) and 60 respondents were from the service man among the students (20%).

Table 2: Uses of Soap Brand of the Respondents

Soap Brand	Mean	S.D
Lux	2.10	1.20
Dettol	2.36	1.29
Dove	2.10	1.18
Lifebuoy	2.31	1.22
Pears	1.72	1.16
Cinthol	1.30	1.11
Nirma	1.19	1.12
Santoor	1.40	1.18

Source: Primary Data

The above table no.2 explain the uses of soap brand of the respondents the lux soap mean value is 2.10 and standard deviation is 1.20 with preferred among the college going students. the Dettol soap mean value is 2.36 and standard deviation is 1.29 with preferred among the college going students. the Dove soap mean value is 2.10 and standard deviation is 1.18 with preferred among the college going students. the lifebuoy soap mean value is 2.31 and standard deviation is 1.22 with preferred among the college going students. the Pears soap mean value is 1.72 and standard deviation is 1.16 with preferred among the college going students. the Cinthol soap mean value is 1.30 and standard deviation is 1.11 with preferred among the college going students. the Nirma soap mean value is 1.19 and standard deviation is 1.12 with preferred among the college going students. the Santoor soap mean value is 1.40 and standard deviation is 1.18 with preferred among the college going students.

Table 3: Uses of Tooth paste of the Respondents

Tooth Paste	Mean	S.D
Colgate	2.92	1.12
Pepsodent	2.32	1.32
Close-up	2.12	1.34
Dabur	2.09	1.11
Sensodyne	1.58	1.22
Cibaca	1.41	1.45

Source: Primary Data

The above table no.3 explicit the uses of tooth paste of the respondents, the colgate is the first preference by the college going students the mean value is 2.92 and the standard deviation value is 1.12. the Pepsodent is the most preference by the college going students the mean value is 2.32 and the standard deviation value is 1.32. the close-up is the preference by the college going students the mean value is 2.12 and the standard deviation value is 1.34.the Dabur is the preference by the college going students the mean value is 2.09 and the standard deviation value is 1.11. the Sensodyne is the preference by the college going students the mean value is 1.58 and the standard deviation value is 1.22. the Cibaca is the preference by the college going students the mean value is 1.41 and the standard deviation value is 1.45.

Table 4: Uses of Face Wash Creams of the Respondents

Face wash Creams	Mean	S.D
Himalaya	2.49	1.30
Garnier	2.25	1.31
Ponds	1.79	1.22
Lakme	1.58	1.39
Nivea	1.39	1.15
Fair & Lovely	1.58	1.29

Source: Primary Data

The above table no.4 shows the uses of face wash creams of the respondents, ponds face wash creams was most preferred by the college going students the mean value is 1.79 and the standard deviation is 1.22 of the respondents. And second Lakme face wash creams were most preferred by the college going students the mean value is 1.58 and the standard deviation is 1.39 of the respondents. And third is fair & lovely face wash creams was most preferred by the college going students the mean value is 1.58 and the standard deviation is 1.29 of the respondents. And fourth is Himalaya face wash creams was most preferred by the college going students the mean value is 2.49 and the standard deviation is 1.30 of the respondents. And fifth is ponds face wash creams was most preferred by the college going students the mean value is 2.49 and the standard deviation is 1.30 of the respondents. And sixth is Garnier face wash creams was most preferred by the college going students the mean value is 2.25 and the standard deviation is 1.31 of the respondents.

Table 5: Uses of the Deodorant of the Respondents

Deodorant	Mean	S.D
Axe	2.19	1.40
Eva	2.01	1.32
Park Avenue	1.81	1.13
Denver	1.51	1.14
Reebok	1.46	1.15
Addiction	1.48	1.01
Crystal	1.23	1.09

Source: Primary Data

The above table no.5 explains the uses of the deodorant among the college going students, the axe deodorant is the maximum preferences by the college going students in avadi the mean value was 2.19 and the standard deviation is 1.40. in addition, the eva deodorant was the next maximum preferences by the college going students in avadi the mean value 2.01 and the standard deviation is 1.40. in addition, park avenue is next maximum preference by the college going students the mean value is 1.81 and standard deviation is 1.13. In addition, Denver deodorant is next maximum of the college going student's preferences the mean value is 1.51 and the standard deviation is 1.14. in addition, the reebok is next maximum preference of college going students the mean value is 1.46 and the standard deviation is 1.15. in addition, Addiction is next maximum of college going students' preference in this product the mean value is 1.48 and standard deviation is 1.01. in addition, crystal deodorant was the maximum preference by the college going students the mean value is 1.23 and standard deviation is 1.09 of the respondents.

Suggestions

- In avadi Chennai is one of the maximum number of respondents residential area, in this place majority of the colleges are working here and number of students are studying various aspects of trade. They are preferring different kinds of toiletry products in day-by-day.
- In recent days most young college going students are not aware about the brand preference, they only got from parent's uses of the products. They cannot choose the right product which is non side effect of the toiletry products.
- Some kind of seasonable toiletry products are sells in the market but our students not aware about how to select good health products and also, they only want to attractive products but not take in the part of features of any kind of products.
- In particularly women college going students was using face wash creams and pimple removing creams it is sometimes creating many sides effect on their face refraction. So, they want to good consultation through skin doctor's suggestions and any kind of medical facilitations.
- In generally the boys and girls using the toiletry products but one this anything happens during use of that products they do not aware about system of complaint registration and compensation claiming process of district, state and national level of complaint forums. Hence, the central and state government to facilitate and to create awareness of these kind of activities.

Conclusion

In generally not only in inda but also in the world awareness about such toiletry products is quite low because no matter what's new products are being launched in the market, people choose only new products day- by –day because no cares about its quality, pocketable colors and low price. They only take these into account but no one is fully aware of their importance and uses. They first use them and then enjoy their bad effects. In India imported and marketed about toiletry products the college going students do not care about the quality of such marketable products. Many studies and reports have proven that only cheap toiletry products cause many skin diseases and many diseases including cancer and high blood pressure. In next five people in India are affected by skin cancer and blood cancer of every minute, especially in big cities like Chennai the use of college students is one of the most common. They don't know the full uses of toiletry products. The effects that can be experienced after buying them are increasing day – by –day. Therefore, if the governments create such awareness among the students who are going to college and studying through the colleges and studying students what will be the way to save the students from various problems. This research study is only discussing about the awareness about the college going students in avadi, Chennai only.

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AN EMPIRICAL ANALYSIS ON INVESTORS' PERCEPTION TOWARDS VARIOUS INVESTMENT AVENUES: A STUDY ON THE INDORE REGION MADHYA PRADESH

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Vikas Rathore**

ABSTRACT

Individuals interested in investing in India's many investment opportunities are finding a welcoming atmosphere thanks to the country's improving economic situation. There are a lot of people with enough disposable income to put their money into various investments such mutual funds, gold, stocks, banks, national savings certificates, the post office, insurance, and public provident funds. Investors' views on different investment paths have been the subject of a great deal of study in recent years. Some studies focused on investing on different routes have been culled from a review of investment literatures of mutual funds, shares, and gold viewpoint. But little is known about how investors in Indore, Madhya Pradesh, India, feel about the many investment opportunities. Thus, the void in the literature on investment opportunities is filled by this article. The improvement of service and health sector infrastructure has led to fast economic growth in India, which is positively impacting the investment business. Mutual funds are quickly replacing traditional investment vehicles like bank fixed deposits and post office savings as a popular choice for individuals looking to diversify their portfolios and take advantage of rising incomes and market values. Investors' perspectives on different investment opportunities in Indore, Madhya Pradesh, India, are the focus of the current empirical research. The study used an exploratory research methodology and relied on both primary data collected via questionnaires and secondary data culled from a variety of sources, including a number of scholarly journals. According to the study's findings, post office savings plans (POSS) and fixed deposits are the only investment options that satisfy the favourable and satisfied criteria of middle-aged and middle-income individual investors.

***KEYWORDS**: Investors' Perception, Investment on Various Investment Avenues, Favourable and Satisfactory Investment Decision.*

Introduction

The functioning of a country's financial markets is critical to its economic growth. By shifting funds from savers to borrowers, they facilitate the redistribution of limited resources and stimulate investment (Deepak Chawla, 2014). Investors are rational actors who use all relevant data to make well-informed investment decisions, according to traditional financial theory.

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Behavioural finance is a relatively young discipline that has developed in the last quarter of a century to investigate the potential psychological influences on financial decisions. The opportunity to have a say in important decisions and see those decisions come to fruition is what draws in so many people to investing. Because an investor could be dissatisfied with their investment selection after a certain amount of time has passed, not all investments will turn out well. Investment is a weighty topic because of the profound impact it may have on the financial security of a person in the long run. Most people have some kind of financial strategy. Contributions to pension plans, life insurance, gold, post office savings programs, etc., allow individuals to invest even when they do not choose particular assets like shares, real estate, or mutual funds. Since a better value usually comes with accepting a higher price, it is important to assess how much you are ready to pay in relation to the unique qualities of each investment, such as its market price and worth. An empirical effort is undertaken in this research to explore how individual investors in Indore city, Madhya Pradesh, perceive different investment possibilities. In a dynamic and competitive economy, the present research is also critically important for improving our knowledge of gender differences in investment decisions. Taking all of it into account, the study sets out to address the following research question:

Is there a difference in the kind of good and satisfying investing decisions made by men and women?

Investment – Concept

Investing is the process of buying financial assets. According to Mahendra Kumar Ikkar (2014), investment is the deliberate act of a person or organization that entails the development of funds in securities or assets produced by any financial institutions with the goal of achieving high returns within a specific time frame. An investment, from an economic perspective, is the acquisition of non-consumable items with the intention of generating wealth via their use in the future. In the financial industry, "investment" refers to financial assets purchased with the hope of earning money in the future.

Investors' Views on Different Investment Opportunities in India

An individual investor is someone who makes their own financial decisions and invests their own money in the financial market with the expectation of turning a profit later on. What matters most to investors is how they personally feel about a certain thing. An accurate indication of how investors evaluate the various investment possibilities accessible to them at any particular moment may be found in investors' perceptions. Investors' mentalities have a role in how others see them when it comes to financial investments.

People who put their money into the market usually do so by comparing their requirements to the characteristics of the many investment opportunities that are out there. Their choices for various savings vehicles vary in degree. For day-to-day expenses, most investors keep a small amount of cash on hand and a larger sum in a bank account. Salary earners are required by law to put money into the Employees Provident Fund (EPF). In the event that the family's main provider passes away suddenly, life insurance is often seen as the best course of action. After paying all mandatory expenses, any remaining funds are considered savings, and with them comes the responsibility of choosing wisely among available investment opportunities. A large percentage of working-age women today are focused on advancing their careers and providing for their families. Women's perceptions of investing opportunities have also been evolving, and they are willing to take on more risky financial ventures (Paramashivaiah, 2014).

Statement of the Problem

In order for an investment to be considered value-oriented, it must cater to each investor's specific requirements. As a result, the requirements of the investor should be considered first while seeking a value investment. An investment is considered valuable if it satisfies all eight criteria. The current study's research topic was therefore suggested to center on how individual investors perceive different investment paths. In light of this, the aspect.

Rationale

There is no effort to separate the positive and satisfying investment decisions made by individual investors or their relationships across genders from the literature evaluation that is focused on the investment behavior/perception of investors in different investment outlets accessible in India. When looking at investor sentiment towards different investment opportunities in India, the majority of research have shown inconsistent outcomes. The current study fills this knowledge vacuum.

Objective of the Study

- To determine the successful and fulfilling investment choices made by individual investors of all genders.

Following the presentation of the main idea of the research in the first section, the remainder of the study is organized as follows: The review of relevant prior material is presented in Section 2. Part 3 focuses on the study methods, which covers the research design, data collecting technique, data analysis tools, and hypotheses derived from the existing literature. Section 4 follows with the analysis of the data and testing of hypotheses. Section 5 includes a discussion of the results and Section 6 closes the research with future scope and practical applications.

Literature Review

According to the literature assessment conducted for this research, the decision-making process of all investors has the most significant influence on how investors perceive different investment options. The literature listed below has been assessed to bolster the necessity of the current investigation.

According to Sarita (2011), investors of all ages and income levels want to safeguard their future by purchasing insurance. According to Yogesh and Charul's (2012) analysis, female investors prefer to invest in gold. Sarita Bahl (2012) looked into the preferences and actions of female investors and highlighted the level of investment planning that they do. She found that only one-sixth of all female investors invest in stocks and shares, and one-third of all female investors have investment plans.

Post office deposits are preferred by investors, according to Kaushal and Kinjal (2012). The opposite is true for the higher-educated, higher-income bracket, who tend to choose investing in stocks, mutual funds, insurance, and property. Investors' opinion and potential investment paths were the primary coverage areas for Ramprasath and Karthikeyan (2013). The most lucrative investment opportunities are given precedence by investors. The investors choose a number of investment options simultaneously. Individuals favor safe havens like bank accounts, life insurance, and precious metals, according to the study's authors. Palanivelu and Chandrakumar (2013) found that investors with low and intermediate incomes prefer to put their money into bank deposits and insurance.

Venkataiah and Rao (2018) made an effort to investigate how investors in Vijayawada City, Andhra Pradesh, felt about different investment options.The research found that investors of both sexes make similar decisions when it comes to investing in gold and other precious metals, and that their preferred investment channels are also consistent. According to the results, investors put their money into different investments with the hopes of seeing a return, either in the short or long term.

Shilpa et al., (2019) examined how investors see mutual funds. The research included 103 investors from Bangalore City. Method of convenience sampling was used, and Chi-Square was employed for data analysis. The author draws the conclusion that improving investor confidence and morale requires more education and open dialogue regarding mutual funds.

An analysis of the aforementioned literature reveals a significant impact on how investors see different investment opportunities. The study's overarching goal is to see how satisfied investors are with various investing options broken down by gender. Gold is the preferred investment option for most respondents, according to this research. The government and banks must so do what is required to entice investors to put their money into public provident funds (PPFs) and mutual funds, among other investment options. It is clear from the literature review that most investors want to maximize their returns.

Research Method

In order to conduct an empirical investigation, the relevant literature was reviewed. We used the direct mail approach to disseminate a structured questionnaire that we had drafted. The study employed an exploratory research approach, with primary data collected via online and offline questionnaires given to the target respondents and secondary data culled from papers, magazines, and reports. The samples were collected just from Indore city using the convenience sampling approach. For the purpose of data analysis, only 101 samples are considered. In order to analyze and understand the data, statistical methods such as a frequency table and a chi-square test were used in the IBM SPSS program. This approach is appropriate as it may demonstrate how an investor's perspective and successful investment choice in practice align with the body of current research.

Hypotheses

The respondent's age and income level do not significantly affect their favourable and satisfying investment choice.

Analysis

- **Frequency Table**

The demographic information of the participants, including their age, gender, and yearly income, is shown in table 1.

Table 1: Gender, Age and Annual Income Profile of the Respondents

Variables	Category	Frequency	Percentage (%)
Gender	Male Female Total	54 47 101	53.5 46.5 100.0
Age (in Years)	21-30 31-40 41-50 Above 50 Total	31 39 24 7 101	30.7 38.6 23.8 6.9 100.0
Annual Income (In Rupees)	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,001 Total	30 32 10 29 101	29.7 31.7 9.9 28.7 100.0

Source: Authors' findings

Inference

According to the data in the table, it seems that men make up 53.5% of the respondents and females just 46.5%. Respondents' ages range from 31 to 40 for the biggest group, with 30.7% falling in that bracket, 23.8% between the ages of 21 and 30, and 38.6% in the period between 41 and 50. Older than 50 is the age of 6.9% of the responders. With respect to yearly income, 29.7 percent of respondents fall into the category of having an income below 3 lakhs..

- **Chi-Square Test**

Table 2 Included information on age, yearly income, and investment options.

Table 2: Relationship between Investors' Perceptions of Different Investment Opportunities and Their Age and Annual Income

Investment Avenue	Age(In Years)	Chi-Square Test	Asymp. Sig	Annual Income(In Rupees)	Chi-Square Test	Asymp. Sig
Fixed deposit	21-30 31-40 41-50 Above 50 Total	1.384	.709	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	1.010	.799
National Savings Certificates (NSC)	21-30 31-40 41-50 Above 50 Total	.875	.646	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	1.283	.733

General Provident Fund (GPF)/Public Provident Fund (PPF)/Employee Fund(EPF)	21-30 31-40 41-50 Above 50 Total	3.750	.290	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	2.645	.266
Post Office Savings Schemes (POSS)	21-30 31-40 41-50 Above 50 Total	.873	.832	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	.873	.832
Insurance Schemes	21-30 31-40 41-50 Above 50 Total	1.286	.526	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	5.143	.162
Mutual funds	21-30 31-40 41-50 Above 50 Total	4.444	.217	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	2.667	.264
Shares	21-30 31-40 41-50 Above 50 Total	.000	1.000	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	6.000	.112
Gold	21-30 31-40 41-50 Above 50 Total	3.000	.223	Below 3,00,000 3,00,001-5,00,000 5,00,001-7,50,000 Above 7, 50,000 Total	3.000	.083

Source: Authors' findings. * Significant at 5% level.

Inference

Table 2 demonstrates that there is no significant correlation between the respondents' investment techniques and their age. Fixed deposits (.709), National Savings Certificates (NSC) (.646), General Provident Fund (GPF)/Public Provident Fund (PPF)/Employee Fund (EPF) (.290), Post Office Savings Schemes (.832), Insurance Schemes (.526), Mutual funds (.217), Shares (1.000), and Gold (.223) are among the investment options for which the Chi-Square Test results surpass the fictitious value (α=0.05) at a 5% level of significance. So, we can't rule out the possibility that older investors have different perspectives on the best ways to put their money to work. Therefore, the preference for various investment vehicles varies by age group, with some differences observed in the following areas: shares, post office savings schemes (POSS), fixed deposits, insurance schemes, general provident fund (GPF), public provident fund (PPF), employee fund (EPF), gold/diamond, and mutual funds.

The researcher also used a Chi-Square Test to look at the respondents' yearly income and how they felt about different investment options, in addition to the data on respondents' ages and investment preferences that was already collected. For investment options like fixed deposits (.799), national savings certificates (NSC) (.733), general provident fund (GPF)/public provident fund (PPF)/employee provident fund (EPF) (.266), post office savings schemes (POSS) (.832), insurance schemes (.162), mutual funds (.264), shares (.112), and gold (.083), the measured values of the Chi-Square Test surpass the hypothetical value (α=0.05) at a 5% level of significance. Thus, the null hypothesis remains valid; investors' views on different investment paths are not significantly related to their yearly income. It follows that the relative importance of various investment vehicles, such as post-office savings schemes (POSS), fixed deposits, national savings certificates (NSC), general provident funds (GPF), employee provident funds (EPF), mutual funds, insurance schemes, shares, and gold, varies across annual income groups.

Discussion

The current research has shown that different genders rank different financial assets in different orders of preference. Although it varies by responder age group, the order of preference for investments toward favorable and satisfying investment decisions is not the same across all age groups. Although it varies among the respondents' varied income levels, the order of preference for investments toward favorable and satisfying investment decisions is not the same throughout the yearly income group. Investors' attitudes toward different investment vehicles were highlighted by the study's results, which showed that middle-aged individuals with middle-class incomes overwhelmingly choose fixed deposits and post office savings schemes (POSS) when making investment decisions.

Conclusion, Suggestions and Implications

The research shows that people put their money into different investing opportunities so they may get the most out of it. All of the participants in this research had one overarching goal when they invested: to put their extra cash into projects that would pay off in the long run. Any time a private investor considers investing, he will choose a strategy that meets his needs. Due diligence is essential before making any investments in the stock or gold markets at the moment due to the extreme volatility and unpredictability of these markets.

We recommend expanding this survey to additional cities in Madhya Pradesh, India, to see how investors there feel about other investment options, including as banks, national savings certificates, post offices, PPFs, insurance, mutual funds, gold, and shares. It is also possible to try to learn what aspects individual investors think are most important when making a good investment choice.

This study will also be useful for the management of both private and public sector to concentrate on various investment avenues which have adverse effect on investors' perception.In order to boost investor confidence and morale, it is important to have good communication skills and be knowledgeable about different investment opportunities. Therefore, the government must intervene to persuade investors to put their money into other investment vehicles, such mutual funds. The study can stimulate future research.

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ACCEPTANCE OF PAYMENT GATEWAY IN INDIA: A STUDY OF CONSUMER BEHAVIOR, CHALLENGES AND GROWTH PROSPECTS

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ABSTRACT

The study investigates consumer behavior, challenges, and growth prospects regarding the acceptance of payment gateways in India. With the rapid digital transformation and government initiatives promoting a cashless economy, the research aims to understand the factors influencing the adoption of digital payment systems. A mixed-methods approach was employed, combining quantitative surveys and qualitative analyses to gather insights from diverse consumer demographics. Key findings indicate that while the adoption of payment gateways has increased significantly, several challenges persist, including security concerns, digital literacy gaps, and infrastructure limitations. Consumers express apprehension over fraud and data breaches, which affects their trust in digital transactions. Furthermore, usability issues and the complexity of refund processes contribute to dissatisfaction among users. The study highlights that businesses face hurdles related to transaction costs and the need for robust IT infrastructure to support online payments. Regulatory frameworks also play a crucial role in shaping the payment landscape. The research concludes that addressing these challenges is vital for enhancing consumer trust and fostering widespread adoption of payment gateways in India. By providing actionable insights for stakeholders, including businesses and policymakers, the study aims to facilitate a more secure and efficient digital payment ecosystem that can sustain India's growth as a leading digital economy.

KEYWORDS*: Payment Gateways, Consumer Behavior, Digital Payments, Security Concerns, E-Commerce Growth, Infrastructure Challenges.*

Introduction

India's digital payment landscape has undergone a revolutionary transformation in the last decade, driven by the rapid adoption of technology, government initiatives, and the growing penetration of the internet and smartphones. With over 750 million internet users and nearly 1.2 billion mobile subscribers, India has become one of the fastest-growing digital economies in the world, and this growth has naturally extended to the domain of digital payments.

Digital Payment Landscape in India

The introduction of payment gateways, mobile wallets, and unified payments interfaces (UPI) has streamlined digital transactions across various sectors. The Indian government's push for a cashless economy, marked by demonetization in 2016 and the launch of Digital India, has further accelerated the

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adoption of digital payments. According to the Reserve Bank of India (RBI), the total volume of digital transactions reached nearly 10 billion by the fiscal year 2022–2023. UPI, in particular, has played a key role in driving this surge by enabling real-time bank-to-bank transfers with minimal transaction costs, making it widely accepted among consumers and merchants.

Payment gateways such as Paytm, Razorpay, CCAvenue, and Instamojo have emerged as crucial intermediaries in processing secure online payments for businesses and consumers. These platforms facilitate multiple payment options, including credit and debit cards, net banking, UPI, and mobile wallets, simplifying digital transactions for both merchants and customers.

Rise of E-Commerce in India

The rise of e-commerce in India has been a major contributor to the growth of digital payments. With major players like Amazon, Flipkart, and Reliance Retail dominating the online marketplace, consumer shopping behaviors have shifted from traditional brick-and-mortar outlets to digital platforms. This shift has been fueled by factors such as convenience, diverse product offerings, attractive discounts, and the availability of easy payment options. In 2023, the Indian e-commerce industry was estimated to be worth over USD 100 billion, with digital payments accounting for a significant portion of transactions.

The pandemic further accelerated the growth of the e-commerce sector, as consumers turned to online platforms for essential goods, groceries, and services. The need for contactless transactions during this period further solidified the importance of digital payment gateways, with businesses across all sectors adopting these solutions to stay relevant and provide seamless purchasing experiences.

Need for Secure and Efficient Payment Gateways

With the increasing volume of online transactions, the need for secure and efficient payment gateways has become paramount. Consumers are increasingly wary of fraud, data breaches, and security risks associated with digital payments. To ensure consumer trust, payment gateways must offer robust security protocols, such as encryption, multi-factor authentication (MFA), and tokenization, to protect sensitive financial information.

In addition to security, payment gateways must provide a seamless user experience. Businesses require efficient payment processing systems that can handle large volumes of transactions without delay or failure, while consumers expect a smooth, hassle-free checkout process. Any friction in the payment process, such as slow loading times or complicated steps, can result in cart abandonment and loss of sales.

The evolving digital payment landscape also emphasizes the need for interoperability and flexibility. Payment gateways must cater to diverse payment preferences, including traditional bank cards, digital wallets, UPI, and emerging technologies like Buy Now, Pay Later (BNPL). They must also be equipped to handle transactions across different devices and platforms, catering to India's large base of mobile-first users.

The digital payment ecosystem in India is rapidly maturing, propelled by e-commerce growth and technological innovations. The future of payment gateways will depend on their ability to offer secure, efficient, and consumer-centric solutions. As digital payment adoption rises, addressing the challenges of security, ease of use, and scalability will be crucial for fostering long-term consumer trust and economic growth.

Research Problem and Key Issue Identification

India has witnessed rapid digitalization across various sectors, with the payment ecosystem undergoing significant transformations. The introduction of payment gateways, which serve as intermediaries facilitating secure online transactions, has been a major contributor to this change. The government’s push toward a cashless economy through initiatives like Digital India, demonetization in 2016, and the introduction of Unified Payments Interface (UPI) have also accelerated the adoption of online payment methods. However, despite the growth of payment gateways in India, their widespread adoption remains a complex issue due to various challenges faced by both consumers and businesses.

- **Consumer Perspective:** From the consumer's viewpoint, several factors impact the adoption of payment gateways. A major issue lies in **security concerns**. Even though most payment gateways offer encryption and secure transaction protocols, incidents of online fraud and data breaches have eroded consumer trust. This hesitation often leads to a preference for cash on delivery (COD) options, especially in Tier II and Tier III cities, where digital literacy is comparatively lower.

- Moreover, **usability and user experience** are critical factors influencing acceptance. Consumers prefer payment gateways that are easy to navigate, offer multiple payment options (debit/credit cards, net banking, UPI, wallets), and have a seamless interface. Any friction, such as transaction failures or delays in confirmation, can lead to dissatisfaction, reducing the likelihood of future use. The complex nature of refund policies and customer support for failed transactions further aggravates this issue.
- Another barrier is **digital literacy** and access to the internet. While India boasts a growing internet user base, there are significant gaps in rural areas, which limit the adoption of online payment gateways. Additionally, elderly users or those unfamiliar with technology may find it challenging to trust and navigate digital payment platforms.
- **Business Perspective** From the business side, the key issue revolves around **cost and infrastructure**. Payment gateways typically charge a transaction fee for processing payments, which can be a burden, particularly for small businesses operating on thin margins. This makes some merchants hesitant to integrate payment gateways, as it could erode their profits. Additionally, businesses need robust IT infrastructure to manage and track online transactions, which may be a challenge for smaller, unorganized retailers.
- Another concern is the **lack of universal adoption** across all consumer segments. Businesses, particularly in sectors like retail, hospitality, and education, often struggle with fragmented payment preferences, requiring them to support multiple payment methods (cash, cards, UPI, etc.). This fragmentation can make payment gateway integration appear less beneficial to businesses, especially when there is no guarantee that all customers will use the gateway.
- Moreover, businesses also face issues related to **technical failures** and **transaction reversals**, which can damage customer relationships. Instances where payment gateways experience downtimes or transaction errors can lead to customer dissatisfaction and lost sales.
- **Regulatory and Policy Concerns:** Another critical issue is the evolving **regulatory landscape** in India. The introduction of the Payment and Settlement Systems Act and various RBI guidelines aimed at securing digital payments have improved consumer confidence. However, continuous policy changes, including mandates related to data localization and stricter compliance requirements, add to the operational challenges for businesses. These regulatory constraints may inhibit innovation and increase operational costs for payment service providers, affecting their ability to offer competitive services.

Thus, the research problem for the study revolves around understanding the factors that influence the adoption of payment gateways from both the consumer and business perspectives. Security concerns, digital literacy, ease of use, and transaction costs are among the key issues affecting adoption. Additionally, businesses face infrastructure challenges and regulatory hurdles that impact their willingness to integrate and fully adopt payment gateways. Addressing these issues is essential to promote widespread acceptance and unlock the full potential of digital payments in India.

Purpose of the Study

The primary objective of this research is to analyze the factors influencing the acceptance of payment gateways in India, focusing on consumer behavior, technological adoption, and security concerns. It aims to identify key challenges faced by both consumers and businesses, such as transaction security, digital literacy, and infrastructure limitations. Additionally, the study seeks to explore future growth prospects of payment gateways by examining emerging trends, regulatory support, and technological advancements. By understanding these aspects, the research intends to provide insights for businesses, policymakers, and service providers to improve digital payment adoption in India.

Research Questions

- What key factors influence consumer behavior and the adoption of payment gateways in India?
- are the primary challenges faced by businesses and consumers in adopting payment gateways, and how can these be mitigated to support growth in India's digital economy?

Scope and Importance

The scope of this research focuses on understanding the factors that influence the acceptance of payment gateways in India, analyzing the challenges faced by consumers and businesses, and exploring the growth prospects of digital payment systems. It will cover the technological, economic, and social dimensions of payment gateway adoption, including the impact of government initiatives like Digital India and policies promoting a cashless economy. The study will also compare the usage and acceptance of popular payment gateways, such as Paytm, Razorpay, and CCAvenue, across various sectors like e-commerce, retail, and banking. Data from both urban and rural consumers will be examined to identify regional disparities and trends.

This research is important for multiple stakeholders, including businesses, payment service providers, consumers, and policymakers. For businesses, it offers insights into how to improve customer trust, enhance security, and boost the adoption of digital payment solutions. For consumers, the study sheds light on ease-of-use concerns, security perceptions, and convenience of payment gateways. Policymakers can use the findings to formulate strategies that enhance digital financial inclusion, promote secure online transactions, and accelerate the transition to a cashless economy. Overall, the research contributes to understanding the evolving digital payment ecosystem in India and its potential to reshape the country's economy.

Literature Review

- **Digital Payments in India: Evolution and Adoption Author: Ravi Kumar (2019**) This book traces the history of digital payments in India, emphasizing key milestones such as the launch of NEFT and UPI. It explains how digital wallets and payment gateways like Paytm transformed the payment landscape, driven by rising smartphone penetration and government policies like Digital India.

  Reference: Kumar, R. (2019). Digital Payments in India: Evolution and Adoption. New Delhi: Sage Publications.

- **Technology Acceptance Models and E-Payment Systems Authors: Davis, Bagozzi, and Warshaw (1989)**This paper introduces the Technology Acceptance Model (TAM), which explores the factors determining the acceptance of new technologies. It highlights perceived ease of use and usefulness as major drivers in payment gateway adoption, providing a theoretical foundation for studying consumer behavior in digital transactions. Reference: Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. Management Science, 35(8), 982-1003.

- **Security Concerns in Online Payments Author: Neha Sharma (2020):** Sharma's paper focuses on security as a critical factor in the adoption of payment gateways. The research identifies consumer trust, encryption technologies, and regulatory frameworks as key influences on users' willingness to adopt e-payment methods, particularly in developing countries like India.

  Reference: Sharma, N. (2020). Security Concerns in Online Payments: A Critical Study. Journal of E-Commerce Studies, 8(2), 120-135.

- **Digital Payment Infrastructure: A Global Perspective Author: Sarah Lee (2018)** This book offers a comparative analysis of payment gateway adoption in countries like China, the US, and India. Lee discusses how technological infrastructure, government policies, and consumer trust vary globally, highlighting India's rapid adoption of gateways post-demonetization but lagging behind developed economies in infrastructure.

  Reference: Lee, S. (2018). Digital Payment Infrastructure: A Global Perspective. London: Palgrave Macmillan.

- **Government Policies and Payment Gateway Adoption in India Author: Amit Raj (2021)** Raj's paper explores the role of Indian government policies such as the Digital India initiative and demonetization in accelerating the adoption of payment gateways. The study examines the role of incentives, subsidies, and public awareness campaigns in encouraging both consumers and merchants to shift to digital payments.

  Reference: Raj, A. (2021). Government Policies and Payment Gateway Adoption in India. Indian Journal of Finance and Technology, 13(3), 45-62.

Research Methodology

The research methodology for this study, *"Acceptance of Payment Gateway in India: A Study of Consumer Behavior, Challenges, and Growth Prospects"*, employs a systematic approach to address the research problem, ensuring that all methods and techniques are meticulously planned and justified. This methodology outlines how the research was structured, why specific methods were chosen, and how data was collected, analyzed, and interpreted to achieve the study's objectives.

Objectives of the Study

- The study focuses on addressing the following key objectives:
- To examine the impact of online payment applications on consumers in India.
- To analyze the challenges and problems faced by users when utilizing online payment gateways.
- To assess the overall benefits of transitioning to a cashless economy for India.

These objectives guide the research process by narrowing the focus of the study and helping formulate hypotheses, directing the collection and analysis of data.

Types of Study

This research integrates several types of studies to comprehensively address the topic:

- **Quantitative Research**

Quantitative research focuses on the collection of numerical data that can be statistically analyzed. This approach was used to quantify various aspects of consumer behavior and challenges faced while using payment gateways. The study gathered measurable data on the frequency of payment gateway usage, security concerns, and the ease of use perceived by consumers. The statistical techniques applied to this data enabled conclusions to be drawn about trends, preferences, and acceptance rates across different demographics.

- **Applied Research**

As an applied research study, this research aimed to solve real-world problems faced by Indian consumers and businesses in the context of payment gateway adoption. The practical implications of the research focused on providing solutions to the challenges identified, such as addressing security concerns, improving user experience, and offering recommendations for businesses to encourage greater adoption.

- **Analytical Research**

This research also involved analytical elements, as existing data from secondary sources (government publications, previous studies, academic journals) were critically evaluated. By reviewing current literature and analyzing statistical data on digital payment growth, the study provided insights into how various factors—such as government policies, digital infrastructure, and market dynamics—affect the adoption of payment gateways in India.

- **Descriptive Research**

Descriptive research was employed to study the existing facts and phenomena without altering or controlling variables. This aspect of the study explored the demographic characteristics of users, the frequency of payment gateway use, and their general experiences. The descriptive nature of the research allowed for a detailed examination of both qualitative and quantitative data related to the acceptance of digital payments in India.

Data Collection

The research utilized a combination of primary and secondary data collection methods to ensure a comprehensive understanding of the acceptance of payment gateways.

Primary Sources

Primary data was collected through structured surveys designed using Google Forms. The questionnaire consisted of both demographic questions (age, gender, income level, etc.) and specific closed-ended questions related to consumer behavior with online payments. Key areas included:

- Frequency of payment gateway usage.
- User perceptions of security and trust.
- The most commonly used online payment applications.
- Experiences with payment gateway failures or challenges.

The use of structured surveys ensured that the data could be easily quantified and analyzed, making it suitable for statistical analysis. The target population included individuals from different age groups, regions, and professional backgrounds to ensure a diverse sample.

Secondary Sources

Secondary data played a critical role in the literature review and contextual understanding of the topic. Sources of secondary data included:

- Government publications on digital payments (e.g., reports from the Reserve Bank of India).
- Academic journals that provided theoretical frameworks and previous research on digital payments.
- Books and reports on the evolution of payment gateways and the digital economy in India.
- Online databases and industry reports that offered statistics and trends in digital payment adoption globally and in India.

Secondary data was primarily used to provide context, support the primary data, and ensure that the research was grounded in existing knowledge and theories.

Data Analysis

Data analysis for this study was conducted through a combination of quantitative and qualitative methods:

- **Quantitative Analysis:** The data collected from the surveys were analyzed using statistical techniques, such as regression analysis and correlation, to identify key factors influencing the adoption of payment gateways. Frequency distributions, cross-tabulations, and charts were used to present the findings clearly.
- **Qualitative Analysis:** Responses from open-ended survey questions and interviews were analyzed thematically to identify patterns related to consumer trust, perceptions of security, and user experiences. Qualitative data helped provide depth to the quantitative findings and uncover insights not captured by numerical data alone.

This research methodology outlines a comprehensive and systematic approach to exploring the acceptance of payment gateways in India. By combining quantitative and qualitative methods, leveraging both primary and secondary data, and employing various types of research (applied, empirical, descriptive, etc.), the study aims to provide valuable insights into the factors influencing the adoption of digital payment systems and the challenges consumers face. The methodology ensures a robust and well-rounded analysis of the research problem, offering practical recommendations for improving the payment gateway ecosystem in India.

Data Analysis: Impact of Online Payment Applications on Consumers in India

To analyze the impact of online payment applications on consumers in India, primary data was collected through a survey focusing on consumer behavior, preferences, challenges, and satisfaction levels with payment gateways. The analysis is based on responses from 500 participants across various demographics. The following table presents key metrics related to the adoption and usage of online payment applications, along with the impact on consumers.

Table 1: Consumer Usage and Impact of Online Payment Applications in India

Metrics	Percentage	Interpretation
Frequency of Usage		
Daily	40%	High engagement, indicating frequent use of online payment apps.
Weekly	35%	Significant usage, but less frequent compared to daily users.
Monthly	15%	Moderate usage, often for larger transactions.

Rarely	10%	Low engagement, possibly due to lack of trust or digital literacy.
Preferred Payment Applications		
Paytm	45%	The most preferred payment app in India, especially in rural areas.
Google Pay	30%	Popular due to easy integration and smooth user experience.
PhonePe	15%	Growing in popularity, particularly among younger consumers.
Other(Razorpay, Mobikwik, etc.)	10%	Niche apps, used primarily for specific merchant payments.
Perceived Security of Payment Gateways		
Highly Secure	35%	A significant portion of consumers trust the security features.
Moderately Secure	45%	Majority have minor concerns about data privacy and fraud risks.
Low Security	20%	A portion of consumers remain skeptical about online payment security.
Ease of Use		
Very Easy	50%	Payment apps are designed with user-friendly interfaces.
Moderately Easy	40%	Some users experience occasional technical difficulties.
Difficult	10%	A small percentage of users face issues with navigation or usage.
Impact on Financial Literacy and Inclusion		
Increased Access to Financial Services	65%	Payment gateways help improve financial inclusion, especially in rural areas.
No Significant Impact	30%	For some users, payment apps haven't significantly affected behavior.
Negative Impact (due to fraud, etc.)	5%	A small portion of users reported issues with fraud and trust.
Main Challenges Faced		
Internet Connectivity Issues	30%	Major challenge in rural and remote areas.
Transaction Failures	25%	Failed transactions causing frustration among users.
Lack of Digital Literacy	20%	Key barrier to adoption, especially among older populations.
Security Concerns	15%	Fraud, data breaches, and privacy concerns hindering adoption.
High Transaction Fees	10%	A minor issue, particularly with certain merchant-based apps.
Satisfaction Levels with Payment Gateways		
Very Satisfied	40%	High satisfaction due to ease of use, cashback offers, and convenience.
Moderately Satisfied	45%	Majority satisfied but experience minor challenges or concerns.
Dissatisfied	15%	Some consumers are unsatisfied due to issues like transaction failures or fees.

Key Insights from Data Analysis

- **Frequency of Usage**: The data indicates that 40% of consumers use online payment applications daily, showing a high level of engagement. Another 35% use these apps weekly, signaling widespread adoption across various demographics.
- **Preferred Payment Applications**: Paytm is the most popular app, used by 45% of the respondents. Google Pay follows closely at 30%, with PhonePe at 15%. The preference for these apps highlights the dominance of a few major players in the Indian market.
- **Perceived Security**: While 35% of users find payment gateways highly secure, a larger portion (45%) perceives them as moderately secure. This suggests a need for more robust security features to build consumer trust.

- **Ease of Use**: 90% of respondents found the payment apps easy to use, reflecting well on the user experience of leading platforms. However, 10% of users face difficulties, particularly among older populations and those unfamiliar with digital platforms.
- **Impact on Financial Literacy and Inclusion**: 65% of respondents believe that online payment applications have increased their access to financial services, especially in rural areas. This indicates that payment gateways are contributing to financial inclusion in India.
- **Main Challenges Faced**: The top challenges reported include internet connectivity issues (30%), transaction failures (25%), and a lack of digital literacy (20%). These challenges highlight areas that need improvement to increase adoption rates.
- **Satisfaction Levels**: Most consumers (85%) are either very or moderately satisfied with payment gateways, citing convenience, cashback offers, and ease of use as the main reasons for their satisfaction. However, 15% remain dissatisfied due to issues like transaction failures and fees.

The data analysis shows that online payment applications have had a significant impact on Indian consumers, particularly in improving access to financial services and enhancing convenience. However, challenges such as internet connectivity, transaction failures, and security concerns remain key barriers to wider adoption. Payment gateway providers can address these challenges by focusing on improving the infrastructure, ensuring robust security, and promoting digital literacy among users.

Data Analysis: Challenges Faced by Users When Utilizing Online Payment Gateways

This section presents the findings from the survey conducted to analyze the challenges and problems faced by users while utilizing online payment gateways. The data was collected from 500 respondents through a structured questionnaire. Below is the data analyzed in tabular format, detailing the frequency and percentage of various challenges reported by users.

Table 2: Challenges Faced by Users of Online Payment Gateways

Challenges	Frequency (N)	Percentage (%)
Security Concerns	180	36.0
Technical Issues (e.g., app crashes)	150	30.0
Lack of Trust in Service Providers	80	16.0
Poor Internet Connectivity	50	10.0
High Transaction Fees	25	5.0
Limited Acceptance at Merchants	15	3.0
Total	**500**	**100.0**

Analysis of the Data

- **Security Concerns (36%)**:
  - A significant 36% of respondents indicated that security concerns were a major challenge when using online payment gateways. Users reported worries about data breaches, phishing attacks, and potential fraud.
- **Technical Issues (30%)**:
  - 30% of respondents experienced technical issues such as app crashes, slow processing times, and difficulties in completing transactions, which hindered their overall experience.
- **Lack of Trust in Service Providers (16%)**:
  - 16% of users expressed a lack of trust in service providers, which affected their willingness to use certain payment gateways. Concerns about the reliability of service providers and customer service quality were common.
- **Poor Internet Connectivity (10%)**:
  - 10% of respondents faced challenges due to poor internet connectivity, especially in rural areas, leading to failed transactions or delays.
- **High Transaction Fees (5%)**:
  - While only 5% of users reported high transaction fees as a challenge, it remains a concern for cost-sensitive consumers who prefer lower-cost payment options.

- **Limited Acceptance at Merchants (3%)**
  - Finally, 3% of users mentioned that limited acceptance of online payment gateways by local merchants was a barrier to using these services.

The analysis reveals that security concerns and technical issues are the predominant challenges faced by users of online payment gateways in India. Addressing these issues through improved security measures and better technical support could significantly enhance user acceptance and satisfaction with online payment systems.

Data Analysis: Benefits of Transitioning to a Cashless Economy in India

The transition to a cashless economy is characterized by numerous benefits that can be quantified through various indicators. This analysis presents data related to economic growth, increased tax compliance, reduction in cash handling costs, and enhanced financial inclusion.

Table 3: Economic Growth Due to Cashless Transactions

Year	Total Digital Transactions (in billion)	Year-on-Year Growth (%)	Contribution to GDP (in billion INR)
2017	1.0	-	1,000
2018	2.0	100%	2,100
2019	3.5	75%	4,000
2020	6.0	71.43%	8,000
2021	9.5	58.33%	12,000
2022	13.0	36.84%	16,500

Source: Reserve Bank of India (RBI), 2022.

Analysis

The table shows a significant increase in total digital transactions over the years, reflecting a robust year-on-year growth rate. The contribution to GDP also demonstrates a positive trend, indicating that digital transactions are playing a crucial role in India's economic growth.

Table 4: Increased Tax Compliance from Digital Transactions

Financial Year	Total Tax Revenue (in billion INR)	Increase Due to Digital Payments (%)	Estimated Tax Gap Reduction (in billion INR)
2018-19	11,000	-	-
2019-20	12,500	13.64%	1,500
2020-21	14,000	12.00%	1,750
2021-22	16,000	14.29%	2,200
2022-23	18,000	12.50%	2,700

Source: Ministry of Finance, Government of India, 2023.

Analysis

The data reveals a consistent increase in total tax revenue, attributed in part to the rise in digital transactions. The estimated reduction in the tax gap indicates improved tax compliance facilitated by a cashless economy, which reduces opportunities for tax evasion.

Table 5: Reduction in Cash Handling Costs

Year	Total Cash Transactions (in billion INR)	Cost of Cash Handling (% of GDP)	Estimated Annual Savings (in billion INR)
2017	30,000	1.50%	450
2018	28,000	1.30%	364
2019	25,000	1.20%	300
2020	22,000	1.00%	220
2021	20,000	0.80%	160

Source: National Payment Corporation of India (NPCI), 2021.

Analysis

The shift towards cashless transactions has led to a noticeable decrease in total cash transactions and associated handling costs. This reduction translates into substantial annual savings, contributing to increased operational efficiency for businesses and consumers.

Table 6: Financial Inclusion Metrics

Year	Percentage of Adults with Bank Accounts (%)	Percentage of Adults Using Digital Payments (%)	Increase in Small Loans Disbursed (in billion INR)
2017	53%	15%	200
2018	70%	25%	500
2019	80%	40%	800
2020	85%	55%	1,200
2021	90%	70%	1,800

Source: World Bank, 2023.

Analysis

The transition to a cashless economy has significantly improved financial inclusion in India, with a notable increase in both bank account ownership and the use of digital payment methods. The rise in small loans disbursed indicates that more individuals have access to credit, thereby promoting entrepreneurship and economic empowerment.

The data presented in these tables clearly demonstrates that the transition to a cashless economy in India has several significant benefits. Increased digital transactions contribute positively to GDP growth, enhance tax compliance, reduce cash handling costs, and promote financial inclusion. Together, these factors indicate a robust framework for a cashless economy that can further support India's overall economic development.

Results and Findings

- **Analysis of Factors:** The acceptance of payment gateways in India is influenced by various factors derived from both primary and secondary data. Key drivers include the increasing penetration of smartphones and internet access, which have facilitated the growth of digital transactions. Government initiatives aimed at promoting a cashless economy, such as the Digital India campaign and the introduction of the Unified Payments Interface (UPI), have also played a crucial role in enhancing consumer confidence and adoption rates. However, significant barriers exist, notably security concerns and digital literacy gaps. Many consumers remain hesitant to adopt online payment methods due to fears of fraud and data breaches, particularly in rural areas where digital literacy is lower.
- **Consumer Behavior Analysis:** Consumer preferences regarding payment gateways are shaped by perceptions of security, ease of use, and available options. A survey indicated that consumers prioritize platforms that offer robust security measures, including encryption and multi-factor authentication. Ease of use is another critical factor; users prefer interfaces that are intuitive and require minimal steps for transaction completion. Payment gateways like Paytm, Gpay, and PhonePe have capitalized on these preferences by providing seamless user experiences and multiple payment options, including UPI and mobile wallets. However, many consumers still exhibit a preference for cash on delivery (COD) due to lingering trust issues with digital transactions.
- **Challenges Identified:** Several challenges hinder the widespread adoption of payment gateways:
- **Technological Limitations:** Many small businesses lack the necessary IT infrastructure to implement robust payment systems.
- **Digital Literacy:** A significant portion of the population, especially in rural areas, lacks the skills to navigate digital payment platforms effectively.
- **Fraud Concerns:** Incidents of online fraud continue to erode consumer trust in digital payments.
- **Transaction Fees:** Payment gateways often charge transaction fees that can be burdensome for small businesses, discouraging them from adopting these technologies.

These challenges create a complex landscape for both consumers and businesses, impacting their willingness to fully embrace digital payment solutions.

- **Comparative Analysis:** The adoption rates of various payment gateways reveal distinct trends:

Payment Gateway	Adoption Rate	Key Features
Paytm	High	Offers a wide range of services including wallet, UPI, and bill payments.
Gpay	High	Strong integration with Google services and user-friendly interface.
PhonePe	High	Extensive merchant network and diverse payment options.
Razorpay	Moderate	Focuses on business solutions with robust API integrations.
CCAvenue	Moderate	Comprehensive support for multiple currencies and payment methods.

Paytm, Gpay, and PhonePe dominate the market due to their user-friendly interfaces and extensive service offerings. In contrast, Razorpay and CCAvenue cater more to businesses with specific needs but face challenges in consumer adoption compared to their more consumer-centric counterparts

Thuse while India's digital payment landscape is rapidly evolving with strong government support and technological advancements, addressing the challenges of security, digital literacy, and transaction costs remains essential for fostering broader acceptance of payment gateways among consumers and businesses alike.

Interpretation of Results

The analysis of findings regarding the adoption of payment gateways reveals significant insights into consumer behavior and market dynamics. The research indicates that while the digital payment landscape in India has expanded dramatically, unexpected results emerged concerning consumer trust and security concerns. Despite the technological advancements and government initiatives promoting digital payments, many consumers remain hesitant to fully embrace these platforms due to fears of fraud and data breaches. This skepticism is particularly pronounced in Tier II and III cities, where digital literacy is lower, leading to a preference for cash-on-delivery options.

The implications of these findings are profound for businesses, policymakers, and consumers. For businesses, understanding these concerns can guide strategies to enhance the adoption of payment gateways. Addressing issues such as security, ease of use, and customer support can significantly improve consumer confidence. Policymakers must recognize the need for robust regulations that not only protect consumers but also foster innovation within the digital payment ecosystem. Consumers, on their part, must be educated about the benefits and security features of digital payments to shift perceptions and increase usage.

Implications for Stakeholders

- **Businesses:** To enhance the adoption of payment gateways, businesses must prioritize consumer concerns regarding security and usability. This can be achieved through:
  - Robust Security Measures: Implementing advanced security protocols such as encryption and multi-factor authentication can help reassure consumers about their financial safety.
  - User-Friendly Interfaces: Simplifying the user experience by ensuring easy navigation and quick transaction processes can reduce friction during payments.
  - Transparent Customer Support: Providing clear information about transaction processes, refund policies, and immediate support for issues can build trust.

By addressing these key areas, businesses can create a more inviting environment for consumers to adopt digital payment methods.

- **Consumers**: Consumer perceptions significantly influence usage behavior. To improve trust and security in digital payments:
  - **Education Initiatives**: Awareness campaigns highlighting the security features of payment gateways can alleviate fears related to fraud.
  - **Feedback Mechanisms**: Encouraging consumer feedback on their experiences with digital payments can help businesses refine their services.
  - **Community Engagement:** Engaging with local communities to promote digital literacy can empower more consumers to embrace online transactions.

Improving these aspects will likely enhance consumer confidence and encourage wider acceptance of digital payment solutions.

- **Policymakers:** For policymakers, fostering a conducive environment for digital payment adoption involves:
  - **Infrastructure Investment:** Improving internet access in rural areas will enable more consumers to engage with digital payment platforms.
  - **Regulatory Frameworks:** Establishing clear guidelines that protect consumer data while promoting innovation in payment technologies is essential.
  - **Support for Small Businesses**: Providing incentives or subsidies for small businesses to adopt payment gateways can help level the playing field.

By implementing these policy changes, stakeholders can enhance the overall digital payment infrastructure, leading to increased acceptance and usage across various demographics.

While the growth of payment gateways in India presents numerous opportunities, addressing key concerns related to security and usability is crucial. By fostering collaboration among businesses, consumers, and policymakers, a more robust digital payment ecosystem can be established that benefits all stakeholders involved.

Conclusion

- **Key Findings:** The research highlights that India's digital payment ecosystem has significantly evolved due to technological advancements and government initiatives aimed at fostering a cashless economy. The rapid adoption of Unified Payments Interface (UPI) and various payment gateways has streamlined transactions, making digital payments more accessible. However, despite this growth, several challenges hinder widespread acceptance. Consumer **Challenges**- From the consumer perspective, security concerns remain paramount. Incidents of online fraud have led to a lack of trust in digital payment systems, particularly in Tier II and III cities where cash on delivery (COD) is often preferred. Furthermore, usability issues such as complex interfaces and transaction failures contribute to consumer reluctance to adopt these technologies. Digital literacy also plays a crucial role; gaps in internet access and familiarity with technology can limit the adoption of payment gateways among certain demographics.
- **Business Challenges:** On the business side, transaction costs associated with payment gateways pose significant barriers, especially for small enterprises operating on narrow profit margins. The need for robust IT infrastructure to manage online transactions further complicates integration efforts. Additionally, the fragmented nature of consumer payment preferences forces businesses to support multiple methods, which can dilute the perceived benefits of adopting a single payment gateway.
- **Regulatory Environment:** The evolving regulatory landscape presents both opportunities and challenges. While regulations aimed at securing digital payments have improved consumer confidence, frequent policy changes can create operational hurdles for businesses. The need for compliance with data localization and other mandates may stifle innovation and increase costs for payment service providers.

Future Prospects

Looking ahead, addressing these challenges is essential for promoting the widespread acceptance of payment gateways in India. Fostering consumer trust through enhanced security measures, improving digital literacy programs, and streamlining regulatory frameworks will be crucial for unlocking the full potential of digital payments. The study underscores that as digital adoption continues to rise, the focus should be on creating a seamless, secure, and user-friendly payment environment that caters to diverse consumer needs.

Recommendations

The study on consumer behavior, challenges, and growth prospects of payment gateways in India highlights several key areas for improvement and action. Below are tailored recommendations for payment gateway providers, government and regulators, and businesses.

For Payment Gateway Providers

- Enhance Security Features: Implement advanced security measures such as multi-factor authentication (MFA), encryption, and tokenization to build consumer trust. Regularly update security protocols to guard against emerging threats.
- Improve User Experience: Focus on creating intuitive user interfaces that simplify navigation. Streamline the checkout process to minimize cart abandonment rates, ensuring quick and hassle-free transactions.
- Expand Payment Options: Offer diverse payment methods, including traditional cards, UPI, mobile wallets, and emerging solutions like Buy Now, Pay Later (BNPL). This flexibility can cater to various consumer preferences and increase adoption rates.
- Invest in Customer Support: Provide robust customer service support to address issues related to transaction failures or refunds. Clear communication regarding policies can enhance user satisfaction and loyalty.
- Educate Consumers: Initiate awareness campaigns that educate consumers about the benefits of digital payments and how to use payment gateways safely. This can help mitigate security concerns and improve digital literacy.

For Government and Regulators

- Foster a Supportive Regulatory Environment: Develop clear guidelines that encourage innovation while ensuring consumer protection. Simplifying compliance requirements can help reduce operational burdens on payment service providers.
- Promote Digital Literacy Programs: Launch initiatives aimed at improving digital literacy, especially in rural areas. Collaborating with educational institutions can help bridge the knowledge gap among less tech-savvy populations.
- Encourage Infrastructure Development: Invest in improving internet connectivity and digital infrastructure across the country. Ensuring that remote areas have reliable access to the internet will facilitate greater adoption of digital payment methods.
- Monitor Fraud and Security Issues: Establish regulatory frameworks that require payment gateway providers to report security incidents transparently. This can enhance accountability and consumer confidence in digital transactions.

For Businesses

- Adopt Payment Gateways Strategically: Evaluate the cost-benefit ratio of integrating payment gateways. Consider platforms that offer competitive transaction fees without compromising service quality.
- Diversify Payment Methods: Cater to varying consumer preferences by offering multiple payment options at checkout. This approach can enhance customer satisfaction and retention.
- Invest in IT Infrastructure: Strengthen technological capabilities to manage online transactions efficiently. Investing in reliable IT systems can minimize downtime and transaction errors, fostering better customer relationships.
- Train Staff on Digital Payments: Provide training for employees on digital payment systems to ensure they can assist customers effectively. Knowledgeable staff can help alleviate customer concerns regarding new technologies.
- Engage with Consumers: Solicit feedback from customers regarding their experiences with digital payments. This information can guide improvements in services and address any pain points effectively.

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ACHIEVING SUSTAINABILITY IN E-COMMERCE

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ABSTRACT

As more and more people turn to online shopping due to convenience and accessibility, the e-commerce industry in India has grown significantly over last few years. With this growth, e-commerce industry is presumed with responsibility to maintain and sustain the environment. In the order to fulfill this responsibility, e-commerce has adopted sustainable practices to deal with issues like excessive carbon emission and extensive energy consumption. This paper includes the various challenges and opportunities in integration of sustainability into e-commerce. The various challenges include the carbon footprint of logistics and transportation, supply chain complexities, disposal of waste generated by businesses, use of extensive energy in digital operations etc. However opportunities abound, such as use of block chain technology, renewable energy and educating customers about environmental problems etc. These challenges and opportunities are studied with the purpose to increase brand image of e-commerce companies and at the same time to create a sustainable environment.

KEYWORDS*: Sustainability, E-commerce, Ecological, Technology, Organizations.*

Introduction

E-commerce refers to form of business transaction which is performed electronically rather than by direct physical contact. E-commerce is a form of business activities that includes the use of digital information and electronic communication in order to create, transform and redefine relationship for value creation. E-commerce transactions take place between or among organizations and between organizations and individuals. E-commerce stands for electronic commerce and includes buying and selling of goods and services through the electronic medium. History of E-commerce relates to 1960, when an electronic system called Electronic Data Interchange was used by companies to transfer documents. In 1994, an online retail transaction of selling a CD took place on an online retail website named as NetMarket. After that, companies like Alibaba and Amazon started to grow rapidly. Now, in today's time E-commerce has become part of everyday needs. E-commerce can be performed on personal computers, tablets, smart phones and other electronic devices. Nearly every imaginable product is available through E-commerce. E-commerce has helped many companies to gain access to wider market and it provides a platform for global reach. There are various advantages of E-commerce like it includes convenience, reduces paper work, provides wider variety of selection, low startup cost, global market reach and opportunity to collect valuable data. Besides there are various disadvantages of E-commerce like there is limited customer services (lack of facility to touch goods), it generates more competition and it is fully dependent on technology etc. There are different types of E-Commerce. The major types of E-commerce are:

- **Business to Business (B2B)**
- **Business to Consumer (B2C)**
- **Business to Government (B2G)**
- **Consumer to Consumer (C2C)**
- **Mobile Commerce (m-commerce)**

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What is Sustainability?

The term sustainability means that "which can be maintained over a long period of time". The essence of the concept means any society which cannot be maintained for a long is unsustainable and that society will function only to a particular point of time. Thus sustainable society will maintain itself for many centuries at least. Sustainable world means the practices that are perceived to be more environmentally sound than others. Thus sustainability includes environmental concern as well as welfare in the context of intergenerational equity. Sustainability implies that environment should be secured not only because of its intrinsic value but it is essential to preserve resources for own future generation. Sustainability amounts to an injunction to save productive capacity for the future generation. This concept is related to welfare, wellbeing, and development of the entire population. Sustainability may be defined as an ability to support a process continuously over the time. In order to sustain natural or physical resources the term sustainability is used in business or policy context. There are various sustainable goals such as reducing environmental footprint and conserving resources which is continuously performed by business organizations and government. The concept of sustainability is broken down into three concepts: Economic, Environment and Social also informally known as profits, planet and people. The concept of "economic sustainability" includes conserving the natural resources that provide physical inputs for economic production, including both renewable and exhaustible inputs. The concept of environment sustainability includes life support system such as atmosphere or soil that must be maintained for economic production. The concept of social sustainability focuses on human effects of economic systems and attempts to eradicate poverty and hunger as well as to combat inequality.

How Sustainability was Introduced

The first use of sustainability was done in 1713 in the Book named "sylvicultura oeconomical'' by Scientist Hans Carl Von Carlowitz. After that a path named as "sustained-yield-forestry" was adopted by French and English Foresters through the practice of planting trees. In 1987, United Nations World Commission on Environment and Development defined Sustainable Development in Brundtland Report. According to this Report, Sustainable Development meets the needs of present generations without compromising the ability of future generations to meet their own needs. In 1990, the term "Ecological Footprint" was developed by Canadian Ecologist William Rees. It means "the amount of land and water area a human population will need" to provide resources required to support it. United Nations in its Agenda for Development has defined the term Sustainability. According to it, in order to achieve high quality of life for all people, Development is Multidimensional Undertaking. There are three reinforcing components of Sustainable Development which are Economic development, Social development and Environment protection and all of them are interdependent.

Review of Literature

Researchers like Amrindar kaur (2017) has studied the sustainability initiatives in supply chain management of manufacturing organizations and found that there are no indicators to measure the sustainability in supply chain management. No measures have completely addressed all the dimensions of sustainability in supply chain. It was found that organizations are realizing the importance of sustainability measurement in order to assess their actual performance.

A study by Arian dokht farnad pour (2016) includes the role of information technology in sustainable tourism. The aim of study was to examine the factors influencing sustainable tourism. It was found that advancement of IT in tourism industry helps in attracting more tourists and had made it more sustainable.

A recent research done by khushboo sharma (2022) focuses on the sustainability of technology based startups in India. It includes the study of various factors affecting sustainability of startup in India and develops a composite indicator to assess the sustainability of a startup. It was found that in order to be sustainable, startups must focus on abilities like entrepreneurial orientation, leadership and networking factors etc.

There are certain effects of sustainable marketing practices and ethical behavior on strong brand loyalty of e-commerce companies. A study done by Divyanshi kumar (2023) find that sustainable marketing practices like transparency, ethical sourcing, using renewable sources etc. creates a strong brand loyalty among the customers. Moreover, ethical behavior practices like respect for autonomy, justice to customers, respecting individual's choice, avoidance of harmful actions create a long lasting impact on customers.

Objective of the Study

- To understand the concept and importance of Sustainable E-commerce.
- To study challenges in implementing various e-commerce practices and finding opportunities to apply sustainable solutions for them.

Research Methodology

This study includes a descriptive research methodology providing a comprehensive data about implementation of sustainability in e-commerce. Various challenges and opportunities in implementation of sustainable e-commerce are included to make the research more insightful. The key purpose is to describe actual situation or problem as it exists without using any unrealistic information.

Meaning of Sustainable E-commerce

Sustainable E-commerce may be defined as conducting online business in a way that it reduces adverse environmental impact and at the same time it promotes social responsibility. All practices from product sourcing to delivery and customer engagement must be performed in ecological manner. Sustainable E-commerce includes businesses fulfilling market demands and promoting ethical practices throughout the supply chain. The key focus area of sustainability includes taking environment responsibility, fulfilling social responsibility and maintaining long term viability. There are various examples of sustainable ecommerce practices. Some of these are: reducing carbon emission, minimizing waste, using eco-friendly materials and packaging, ensuring fair labor practices, supporting local communities, promoting ethical sourcing, using renewable energy sources, maintaining transparency with customers etc.

Why Sustainable E-commerce is important?

Sustainability includes an attempt to reduce a false impact on the environment, social and economic utilization of resources whether in context of domestic or international boundaries. Sustainability may be defined as the ability to achieve current needs without compromising with the ability to meet the needs of future generations. Gradually, almost all companies have started to adopt sustainable business models. Sustainable E-commerce includes performing those methods which have no negative environmental impact. There are various examples of Sustainable Practices. Some of these are:

- To reduce carbon dioxide emissions that cause pollution, companies can use eco-friendly shipping methods.
- Implementation of policies on Transparent Green Manufacturing
- Adopting partnership with only those companies which implement sustainable practices in e-commerce
- Production of eco-friendly products which are more durable and of high quality
- Creating awareness to consumers on the benefits of going green

By incorporating sustainable practices in e-commerce, e-retail market can be made successful and it can last for a very long period. Another benefit of sustainable e-commerce is that it will add the value to online shopping firms. Due to the continuous growth of e-commerce, world is being filled with garbage at a very fast pace. Statistics show that due to high growth of e-commerce globally, there are various unprecedented environmental impacts. Landfills include waste from packaging materials (including plastic, nylons etc.) that causes Air, Water and Land Pollution. In order to reduce packaging waste, its high time companies should adopt sustainable packaging materials. Producers must produce packaging materials that align with 3R: recycle, reduce and reuse. The other advantage of adopting ecologically friendly production practices for retailers is that they can secure a larger market share of customers who are ready to pay a higher price for sustainable goods. Government provides tax exemptions to the companies which are lacking in performing sustainable e-commerce practices. Even consumers prefer to partner with companies that make ecological products in their initiative projects. Producers and Retailers in e-commerce market can collaborate to source their packaging material from suppliers who comply with sustainability values and missions.

Companies that only produce ecologically friendly packaging materials are supported by companies, retailers and society. By following sustainable practices the companies can earn customers brand loyalty and trust. Business organizations can also adopt proactive environmental strategy in order to achieve sustainable development.

To understand the multifaceted nature of sustainable ecommerce practices, study of various dimensions of e-commerce business are done, offering insights into both the challenges faced and the solutions as opportunities to apply sustainability in e-commerce. Various dimensions of e-commerce practices are as follows:

- **Transportation and Green Logistics:** Logistics and Transportation both play important role in delivering goods to consumer effectively and efficiently in E-commerce. But these practices also include carbon emission which leads to adverse impact on environment. The solution for this situation can be adoption of Green logistics which aims to reduce the impact through implementation of sustainable practices from warehousing activities to the final delivery to customer.

There are various challenges in the process of logistics and transportation activities in the realm of E-commerce. Firstly, traditional logistics include use of fossil fuels that causes emission of carbon and greenhouse gases. Another challenge is that due to increased transportation, congestion is increased that causes poor air quality. Another impediment is that sometimes, logistics activities include inefficient packaging that causes unnecessary space usage. At the same time, there are various opportunities to adopt sustainable practices in logistics and transportation activities. One of them is use of Electric and Hybrid Vehicles (EUS) because that will reduce the dependency on fossil fuels and carbon emission. Another solution through sustainable practice is using Data Analytics and GPS technique that will optimize delivery route leading to less fuel consumption. One more solution is to reduce redundant trips by sharing logistics network among the retailers. This will lead to consumption rate and boost efficiency.

- **Innovations in Packaging and Waste Reduction:** Packaging performs various functions such as product protection, branding and provides information about the product contents. But on the other side it causes environment waste and depletion of resources. These impacts can be minimized by adopting sustainable packaging innovations that includes reducing material use rate and promoting recyclability.

There are various drawbacks in the packaging practices of ecommerce market. First of them is that, in order to safeguard goods during transit, over- packaging is done which causes excess waste and high shopping cost. The other drawback is the use of onetime -use plastics in packaging. It causes environment pollution and creates hurdle for disposal system. In the modern era, consumer want packaging that is protective, aesthetically pleasing and the same time it must be sustainable, and that poses a challenge for organizations. With the aim to reduce adverse environmental impact of packaging, some sustainable practices can be adopted. One of them is adoption of biodegradable plastics and recycled content as it will result in reduced environment pollution. Use of smart packaging techniques, innovative packaging solution, creates brand differentiation and promotes sustainable environment. With the use of data analytics and design principles to right size packaging, material use rate can be reduced and it also minimizes the product packaging weight for shipping purpose.

- **Energy Efficient Operations:** Operations from Data centers to Warehouse keeping all include the use of energy so it is very important to use it efficiently in order to reduce the environment footprint of e-commerce operations. This will lead to reduced carbon emission and lower operational cost and enhanced sustainability. For various activities such as website hosting, order processing and management of data, e-commerce relies on data centers and IT infrastructure. These activities include consumption of sustainable energy, basically for powering and cooling the servers. The challenge is that due to constant cooling and powering, energy supply to maintain server operations are needed that lead to massive electricity consumption. With the growth of Cloud computing and Digital transactions, the demand for energy is increased that leads to increased operating cost .Use of renewable energy sources (Solar and Wind power) must be promoted to operate. Moreover, Energy Efficient Servers, Cooling system must be used so that operational cost can be reduced.
- **Distribution Centers and Warehouse Operations:** Inventory storage, order delivery, and logistics management all are warehousing operations in the execution of e-commerce. All these operations consume lots of energy.

The challenges in warehousing operations are that it contributes to very high energy consumption because lighting and heating are required in warehousing. Moreover, ventilation and material building euipments also consumes very high energy in warehousing operations. There is also a problem of fluctuations in demand of products. During peak season there is overconsumption of energy so energy management strategies should be implemented. Solution to this problem can be done through sustainability. Smart energy management system and sensors to monitor energy usage must be installed in order to improve efficiency of energy usage. Additionally, long term operational cost can be reduced through investing in sustainable building practices and by using energy efficient lighting system.

- **Consumer Education and Involvement:** Consumer must be informed and encouraged to make environmentally conscious choices. Business organizations can boost demand for eco-friendly product through such awareness to consumers. In this way, sustainable practices within e-commerce can be promoted.

One of the various hindrances is that many consumers have lack of awareness regarding the environmental impact of online shopping habits and they are not aware of benefits of sustainable alternatives. When making purchase decision consumers prefer convenience and price in place of environmental considerations. There is abundance of products in the market and all marketers claim that they only sell sustainable product that makes difficult for consumers to take buying decisions. Sellers and marketers should launch educational campaign through social media and packaging material so consumers must be made aware about sustainable practices and advantages of performing these practices. Consumers must be rewarded with discounts or loyalty points for choosing eco-friendly options so consumers can get incentives to follow sustainability. Consumers should be provided clear information about product sustainability and its environmental impacts so they can take informed purchasing decisions.

- **Transparency in Supply Chain Operations:** Information about the origin, process and impacts of products throughout their lifecycle should be provided clearly to customers. It empowers customers to take right decision, and generates accountibility across the supply chain.

Supply chain in e-commerce are often complex and involves many suppliers and intermediaries. Managing supply chain data accurately is very tedious task, especially in decentralized supply networks. Block chain technology can be used to maintain supply chain transparency as it helps in maintaining records of transactions and help in tracing everything from raw materials to end product. Customer awareness and demands must be increased so that business performs only responsible sourcing practices.

Conclusion

It would be right to say that the integration of sustainable practices into e-commerce operations is a strategy which is required due to ethical, regulatory and economic demands. It is not just a trend but it has become a necessity of modern era as sustainability is not only about reducing adverse impacts on environment but it also includes reducing cost, increasing long term value creation and resilience. There are some reasons that bound e-commerce business to follow sustainability these are increasing expectations of consumers for transparency in transaction, demand for ethical sourcing and existence of regulatory pressure etc. Despite various challenges in e-commerce like various regulatory measures and complex supply chains, ample opportunities still exist. Use of block chain and data analytics enhances efficiency and transparency in supply chain that paves way for sustainable practices in e-commerce. By embracing practices like responsible sourcing, proactive engagement with consumers, businesses may reduce environment risks and also increase brand image and seize brand opportunities in the market due to eco-conscious consumers. At last, the growth of sustainable e-commerce can be done through collaboration, regular innovation and regulatory landscapes. Businesses must strike a balance between navigating the complexities of global supply chains and creating change towards a more sustainable economy. Achieving sustainability in e-commerce includes various challenges but it also has unprecedented opportunities to thrive in a world where success and sustainability both words can be used interchangeably.

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ENVIRONMENTAL TAXATION AS A TOOL FOR CORPORATE ENVIRONMENTAL RESPONSIBILITY: INTERNALIZING SOCIAL COSTS

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ABSTRACT

This paper examines the effectiveness of environmental taxation in internalizing corporate social costs and influencing corporate behaviour toward sustainability. Environmental taxation is increasingly acknowledged as a crucial policy tool aimed at internalizing the external costs of corporate activities on the environment. This paper synthesizes existing literature to underscore the theoretical underpinnings and empirical evidence supporting the efficacy of environmental taxes, rooted in Pigovian principles of market correction. Amidst growing environmental challenges, the study underscores the significance of evaluating the real-world effectiveness of environmental taxation in influencing corporate behaviour and achieving sustainable outcomes. The research addresses the critical need to assess whether environmental taxes effectively incentivize corporations to mitigate their environmental impact and adopt sustainable practices, thereby contributing to broader environmental and economic goals. Employing a mixed-methods approach, combining quantitative econometric modelling and qualitative case studies, the study examines the impact of environmental taxes on corporate emissions reductions and investments in green technologies across diverse industries and regulatory environments. The findings indicate a significant negative correlation between higher environmental tax rates and corporate emissions, coupled with increased investments in sustainable technologies and operational efficiencies. However, the study also identifies challenges such as varying tax designs, enforcement disparities, and potential regressive impacts, which could limit the overall effectiveness of environmental taxation. Based on these findings, the paper recommends optimizing tax design, strengthening enforcement mechanisms, integrating complementary policies, and enhancing stakeholder engagement to maximize the efficacy of environmental taxation. In conclusion, while environmental taxation shows promise in internalizing corporate social costs and fostering sustainable corporate behaviour, continual evaluation and adaptation of policies are essential to address limitations and ensure long-term environmental sustainability and economic resilience.

KEYWORDS*: Corporate Behaviour, Corporate Social Costs, Environmental Taxation, Policy Implications, Sustainability.*

Introduction

Environmental taxation has emerged as a vital instrument for addressing the environmental externalities associated with corporate activities. By imposing taxes on practices that harm the environment, governments aim to internalize the social costs of pollution and resource depletion, encouraging corporations to adopt more sustainable practices. This approach, rooted in the principles of Pigovian taxation, seeks to correct market failures where the true costs of environmental damage are not

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reflected in market prices. The effectiveness of environmental taxation in achieving these objectives is of significant interest to policymakers, businesses, and researchers alike. This study explores the impact of environmental taxes on corporate behaviour and their broader policy implications. By examining various case studies and empirical data, the research aims to provide a comprehensive assessment of how environmental taxes influence corporate strategies, investment in green technologies, and overall environmental performance. Additionally, the study will evaluate the design and implementation of these taxes, offering insights into best practices and potential challenges. The findings are intended to inform more effective policy frameworks that balance economic growth with environmental sustainability, ultimately contributing to the broader discourse on sustainable development and corporate responsibility.

Review of Literature

- **Theoretical Foundations of Environmental Taxation**

Environmental taxes, often referred to as Pigovian taxes, are grounded in the economic theory proposed by Arthur Pigou (1920). Pigou suggested that imposing taxes on activities generating negative externalities, such as pollution, can correct market failures by internalizing social costs. These taxes incentivize firms to reduce harmful emissions and invest in cleaner technologies, aligning private costs with societal costs. Subsequent theoretical advancements have reinforced the potential of environmental taxes to promote both environmental and economic efficiency (Baumol & Oates, 1988).

- **Empirical Evidence on Environmental Taxation**

Empirical studies have demonstrated varying degrees of success in the implementation of environmental taxes. Fullerton and Metcalf (1997) found that well-designed environmental taxes can significantly reduce emissions and promote technological innovation. Their research highlights the importance of setting tax rates that effectively balance the cost of pollution with the cost of abatement technologies. Similarly, a study by Bovenberg and Goulder (2002) showed that environmental taxes could lead to substantial environmental benefits without imposing undue economic burdens if complemented by other regulatory measures.

- **Corporate Responses to Environmental Taxes**

The impact of environmental taxes on corporate behaviour has been widely studied. Firms typically respond to these taxes by adopting cleaner production processes, investing in green technologies, and improving resource efficiency (Porter & van der Linde, 1995). Research by Dechezleprêtre and Sato (2017) indicated that companies subject to environmental taxes were more likely to increase their research and development (R&D) spending on environmental innovations. However, the extent of corporate adaptation varies depending on factors such as the tax rate, industry characteristics, and regulatory environment.

- **Policy Implications and Challenges**

The broader policy implications of environmental taxation have been explored extensively. Ekins and Speck (2011) argued that environmental taxes could be an effective tool for green growth, provided they are part of a comprehensive policy mix that includes subsidies for clean technologies and stringent regulatory standards. The Organisation for Economic Co-operation and Development (OECD) (2010) emphasized the role of environmental taxes in generating public revenue that can be reinvested in environmental protection and sustainability initiatives.

- **Criticisms and Limitations**

Despite their potential benefits, environmental taxes face several criticisms and limitations. Critics argue that these taxes can be regressive, disproportionately affecting lower-income households and small businesses (Baranzini et al., 2000). Additionally, the effectiveness of environmental taxes can be undermined by issues such as tax evasion, lack of public acceptance, and the need for international coordination to prevent carbon leakage (Barker et al., 2011).

- **Conclusion of Literature Review**

The literature on environmental taxation underscores its potential to internalize corporate social costs and drive sustainable corporate behaviour. However, the effectiveness of these taxes depends on careful design, robust enforcement, and the integration of complementary policies. Future research should continue to explore the dynamic interactions between environmental taxes, corporate strategies, and broader economic and environmental outcomes.

Need/Importance of the Study

The pressing environmental challenges of our time, such as climate change, pollution, and biodiversity loss, necessitate effective policy measures to mitigate the negative impacts of corporate activities on the environment. Environmental taxation stands out as a pivotal tool in this regard, aiming to internalize the social costs of environmental degradation and incentivize sustainable corporate behaviour. Despite the extensive research on environmental taxation and corporate social responsibility, there remains a need for a more comprehensive analysis of the policy implications and corporate behaviour in this domain. This study is crucial for several reasons.

Firstly, this study aims to address this gap by conducting a multi-dimensional assessment of the effectiveness of environmental taxation in internalizing corporate social costs. By examining the interplay between policy, corporate behaviour, and overall welfare, this research will contribute to a deeper understanding of the mechanisms by which environmental taxation can incentivize more sustainable business practices.

Secondly, the study addresses the policy implications of environmental taxation. It evaluates the design and implementation of these taxes, identifying best practices and potential pitfalls. This information is vital for policymakers aiming to develop robust environmental tax frameworks that balance economic growth with environmental sustainability.

Thirdly, the study contributes to the broader discourse on sustainable development and corporate responsibility. It highlights the role of environmental taxes in promoting corporate accountability and fostering a culture of sustainability within the corporate sector.

Ultimately, this research aims to provide actionable insights that can enhance the effectiveness of environmental taxation as a policy tool, driving meaningful progress towards a more sustainable and equitable future.

Statement of the Problem

Despite the theoretical foundation and empirical support for environmental taxation, its real-world effectiveness in internalizing corporate social costs and influencing corporate behaviour remains unclear and contested. The variability in tax design, implementation, and enforcement across different regions adds complexity to assessing their impact. This study aims to address these gaps by evaluating the effectiveness of environmental taxes in promoting sustainable corporate practices and informing policy decisions. Understanding these dynamics is crucial for designing more effective environmental tax policies that achieve both environmental and economic objectives.

The central question guiding this research is: To what extent can environmental taxation effectively incentivize corporate social responsibility and the internalization of social costs by corporations?

Objectives

The objectives of this study are to:

- Assess the impact of environmental taxation on the internalization of corporate social costs, including environmental pollution, resource depletion, and other negative externalities.
- Investigate the role of firm characteristics, such as size, ownership, and age, in moderating the relationship between environmental taxation and corporate sustainability efforts.
- Analyze the impact of environmental taxes on corporate behaviour.
- Explore the policy implications of environmental taxation including its potential to foster more responsible and sustainable corporate behaviour.
- Provide recommendations for improving environmental tax policies.

Hypotheses

- Environmental taxation significantly reduces corporate environmental externalities.
- Firm characteristics, such as size, ownership, and age, have a significant influence on the effectiveness of environmental taxation in promoting corporate sustainability.
- The implementation of environmental taxation leads to a measurable improvement in corporate social responsibility and environmental performance.
- The effectiveness of environmental taxation is enhanced by complementary regulatory measures and enforcement mechanisms.

Research Methodology

Data Collection

The study employs a mixed-methods approach, combining quantitative data analysis with qualitative case studies. Data sources include government reports, corporate sustainability disclosures, and academic publications.

- **Analytical Framework**
  - Quantitative analysis of secondary data: Analysing financial and environmental performance data of publicly traded corporations to assess the impact of environmental taxation on corporate social costs and sustainability metrics. Econometric modelling will be used to assess the relationship between environmental taxes and corporate environmental performance.
  - Qualitative Analysis: Case studies of companies subject to environmental taxes, examining the experiences of selected corporations that have been subject to environmental taxation, exploring their behavioral adjustments and the resulting impacts on their environmental and social performance.
- **Sampling**

A stratified random sampling method is used to select a representative sample of industries and companies.

Results

The quantitative analysis revealed a statistically significant negative correlation between environmental tax rates and corporate emissions across the sampled industries. Higher environmental taxes were associated with substantial reductions in greenhouse gas emissions and pollutants. Companies facing stringent environmental taxes demonstrated increased investments in green technologies and cleaner production processes. The econometric models showed that for every percentage increase in environmental tax rates, there was an average 2-3% reduction in emissions, indicating a strong incentive effect. Additionally, firms in regions with robust enforcement mechanisms and complementary environmental regulations exhibited more significant improvements in environmental performance. The qualitative case studies further supported these findings, illustrating how companies strategically adapted to environmental taxes by enhancing operational efficiency, adopting renewable energy sources, and engaging in corporate social responsibility initiatives. The results indicate that environmental taxation positively influences corporate sustainability efforts, leading to a measurable improvement in environmental performance and the internalization of social costs. This study provides valuable insights into the role of environmental taxation in driving sustainable corporate behavior and the internalization of social costs. The findings can inform policymakers and corporate leaders in designing and implementing effective environmental policies and strategies that promote long-term environmental and social sustainability.

Findings

The research confirmed that environmental taxation effectively internalizes corporate social costs, driving significant environmental improvements and promoting sustainable corporate behaviour leading to improved waste management, reduction, reuse, and recycling efforts, as well as increased investment in energy conservation and renewable energy sources. However, the study also identified several critical factors influencing the effectiveness of these taxes. The design of the tax, including its rate and scope, was paramount in determining its impact. Moreover, the presence of complementary policies, such as subsidies for green technologies and stringent regulatory standards, enhanced the effectiveness of environmental taxes. The findings underscored the importance of enforcement mechanisms in ensuring compliance and reducing tax evasion. Public awareness and acceptance of environmental taxes emerged as vital for their success, highlighting the need for transparent communication and stakeholder engagement. The research also noted challenges, such as the potential regressive impact of taxes on small businesses and low-income households, suggesting the need for targeted measures to mitigate these effects. The effectiveness of environmental taxation in promoting sustainable corporate behaviour is influenced by firm-level characteristics, such as size, ownership, and age. Larger, older and publicly-traded corporations tend to be more responsive to environmental taxation, as they have greater resources and face greater public scrutiny.

Overall, the study provided robust evidence supporting the role of environmental taxation in fostering corporate responsibility and environmental sustainability.

Recommendations / Suggestions

Based on the results and findings, the following recommendations are proposed to enhance the effectiveness of environmental taxation in internalizing corporate social costs and promoting sustainable corporate behaviour:

- **Optimal Tax Design**
  - Set environmental tax rates at levels that provide strong incentives for pollution reduction without imposing excessive burdens on businesses.
  - Ensure the scope of taxes covers all significant pollutants and environmental impacts to prevent loopholes and maximize coverage.
- **Complementary Policies:**
  - Implement subsidies and financial incentives for companies investing in green technologies and renewable energy.
  - Combine environmental taxes with stringent regulatory standards to create a comprehensive framework for environmental protection.
- **Robust Enforcement Mechanisms:**
  - Strengthen monitoring and enforcement to ensure compliance and reduce tax evasion.
  - Utilize advanced technologies such as blockchain and AI for transparent tracking of emissions and tax obligations.
- **Public Awareness and Engagement:**
  - Enhance public understanding and acceptance of environmental taxes through transparent communication and education campaigns.
  - Involve stakeholders, including businesses, civil society, and local communities, in the design and implementation of environmental tax policies.
- **Targeted Measures to Mitigate Regressive Impacts:**
  - Design tax relief or exemption schemes for small businesses and low-income households to address potential regressive effects.
  - Introduce revenue recycling mechanisms where tax revenues are used to fund social programs or reduce other taxes, benefiting disadvantaged groups.
- **International Coordination:**
  - Promote international cooperation and harmonization of environmental tax policies to prevent carbon leakage and ensure a level playing field for businesses globally.
  - Engage in global platforms to share best practices and experiences in environmental taxation.
- **Continuous Evaluation and Adaptation:**
  - Establish mechanisms for the regular review and adjustment of environmental tax policies based on their performance and evolving environmental challenges.
  - Foster a culture of continuous improvement and innovation in environmental policy design.
- Policymakers should consider a comprehensive policy approach that combines environmental taxation with other complementary measures, such as targeted support for smaller or younger firms, to ensure a more equitable and effective transition towards sustainable corporate behavior.
- The findings also suggest that policymakers should pursue an environment-centered industry policy not only in the manufacturing sector but also in the financial services sector, as firms in both sectors with lower environmental costs tend to perform better

- To address the observed negative impact of green behaviors on corporate value, policymakers may promulgate preferential policies for enterprises that engage in desired green behaviors, establish green-development incentive mechanisms, and encourage technological innovation, energy conservation, and pollution

Implementing these recommendations can enhance the effectiveness of environmental taxation, ensuring it contributes significantly to environmental sustainability and corporate social responsibility.

Conclusion

In conclusion, the study underscores the pivotal role of environmental taxation in internalizing corporate social costs and fostering sustainable corporate behaviour. The results demonstrate that well-designed environmental taxes can effectively incentivize emissions reductions and spur investments in cleaner technologies. However, to maximize effectiveness, it is crucial to implement complementary policies, strengthen enforcement mechanisms, and enhance public awareness. By adopting these measures, policymakers can create a conducive environment for businesses to embrace environmental responsibility while advancing broader sustainability goals. Continued evaluation and adaptation of environmental tax policies will be essential in navigating future challenges and promoting a greener, more resilient economy.

Limitations

The research may face limitations in generalizing findings due to the diversity of environmental tax regimes and corporate contexts globally. Data availability and reliability could vary across regions, impacting the comprehensiveness of the study. The study's reliance on reported data from companies and government sources could introduce biases or inaccuracies, influencing the robustness of the conclusions drawn. The analysis is based on secondary data, which may not capture the nuances of corporate decision-making and behavioral responses to environmental taxation. The study is limited to publicly traded corporations, which may not fully represent the broader business landscape.

Despite these limitations, the insights provided by this study offer valuable guidance for policymakers and corporate leaders in developing and implementing effective environmental policies and strategies.

Scope for Further Research

Further research could expand on several aspects to deepen our understanding of environmental taxation's effectiveness in internalizing corporate social costs:

- **Longitudinal Studies:** Conduct longitudinal studies to assess the long-term impacts of environmental taxes on corporate behaviour and environmental outcomes. This would provide insights into the sustainability of behavioral changes and technological investments over time.
- **Comparative Analysis:** Compare the effectiveness of different types of environmental tax designs across various jurisdictions and industries. This would help identify best practices and factors influencing tax effectiveness.
- **Behavioral Economics Approaches:** Apply behavioral economics principles to understand how companies perceive and respond to environmental taxes, considering factors like risk perception, decision-making biases, and organizational behaviour.
- **Sector-Specific Studies:** Conduct in-depth studies focusing on specific industries or sectors to uncover sector-specific challenges, opportunities, and policy implications of environmental taxation.
- **Policy Impact Assessment:** Evaluate the broader economic and social impacts of environmental taxation beyond environmental outcomes, including effects on employment, competitiveness, and economic growth.
- Complementary Instruments: Analysing the interplay between environmental taxation and other complementary policy instruments, such as emissions trading schemes or subsidies for green investments.

- **International and Cross-border Effects:** Investigate the spillover effects of environmental taxes across borders, addressing issues such as carbon leakage and competitiveness disparities.

By addressing these research avenues, policymakers can refine environmental tax policies, enhance their effectiveness, and promote more sustainable corporate practices globally.

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ADOPTION OF DIGITAL PAYMENTS IN INDIA: TRENDS, CHALLENGES, AND SOCIO-ECONOMIC IMPACT

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ABSTRACT

The adoption of digital payment systems in India has transformed financial transactions, influencing consumer behaviour and business operations. This study examines the key factors driving digital payment adoption and its socio-economic impact using a quantitative approach. A structured survey was conducted with a sample size of 165 respondents in Jaipur, Rajasthan. Descriptive statistics, chi-square tests, and regression analysis were applied to assess the relationship between digital payment adoption and demographic factors such as age, income, and education level. The results indicate that convenience, transaction speed, and government initiatives such as UPI significantly influence adoption ($p < 0.05$), while security concerns act as a moderate barrier. Regression analysis reveals that digital literacy and financial incentives positively impact digital payment usage, contributing to financial inclusion. Furthermore, digital payment adoption correlates with increased spending behavior and business efficiency. However, challenges such as cybersecurity risks and digital accessibility persist. The study concludes that while digital payments have revolutionized India's financial landscape, sustained growth requires a focus on trust-building, infrastructure development, and targeted policy interventions. Addressing these factors will further integrate digital payments into mainstream financial activities, ensuring equitable socio-economic benefits.

KEYWORDS: *Digital Payments, Financial Inclusion, Consumer Behavior, Business Efficiency, Digital Literacy.*

Introduction

India's digital payment growth has been rapid over the years, fuelled by smartphone penetration, advancements in digital technology, and government-led schemes aimed at fostering a cashless economy such as Digital India and Unified Payments Interface (UPI) (Rai, 2021). Digital transactions have revolutionised the interaction between consumers, businesses, and the financial ecosystem. The transition from cash-based to digital transactions is redefining payment systems and also affecting socio-economic factors broadly. The demonetization policy move sped up to transition to cashless payments, promoting transparency and decreasing cash dependence. Innovations like mobile wallets, UPI, and cashless payments have further driven the transition. This benefits consumers with convenience and security, by enhancing operational efficiency and customer reach for businesses.

India's digital payment adoption faces obstacles such as digital literacy gaps, cybersecurity concerns, and unequal technology access (Chakraborty, 2021). Rural socio-economic inequalities, especially in rural areas hinder widespread adoption, limiting financial inclusion and equitable access to digital financial services for vulnerable populations (Bansal, 2020). This research investigates digital payment adoption drivers and socio-economic affects consumers and businesses, aiming to inform policy decisions, foster inclusive growth, and improve the digital payment ecosystem.

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Review of Literature

S. No.	Author with Year	Research Title	Research Methodology	Statistical Methods & Results	Key Findings
1	Sharma & Gupta (2020)	Adoption of Digital Payments in Urban India	Quantitative survey (n=250)	Descriptive statistics, Chi-square test ($p < 0.05$)	Convenience and government incentives are major drivers of adoption.
2	Reddy (2021)	Digital Payment Trends and Their Economic Impact	Mixed-method (Survey + Interviews, n=180)	Regression analysis (β=0.58, $p < 0.01$)	Digital literacy and smartphone penetration positively affect adoption.
3	Kumar & Singh (2019)	Analyzing Consumer Preferences for Digital Transactions	Quantitative survey (n=300)	Logistic regression ($p < 0.05$)	Trust and perceived security influence consumer adoption behavior.
4	Gupta et al. (2022)	Socio-economic Effects of Digital Payments in India	Quantitative analysis (n=200)	Correlation analysis (r=0.65, $p < 0.01$)	Digital payments improve financial inclusion for underbanked populations.
5	Verma & Jain (2021)	Digital Payment Adoption Among Small Businesses	Case study (20 SMEs)	Descriptive statistics, Thematic coding (qualitative insights)	Small businesses face operational challenges despite increased efficiency.
6	Mishra (2020)	Digital Financial Services and Rural India	Quantitative survey (n=150 rural respondents)	Chi-square test (χ^2=9.45, $p < 0.05$)	Rural consumers adopt digital payments slowly due to low digital literacy.
7	Choudhary & Malhotra (2022)	Digital Payment Adoption in Post-COVID India	Quantitative (n=220)	ANOVA (F=5.82, $p < 0.01$)	Post-COVID digital adoption increased across age groups.
8	Patel (2021)	Impact of Digital Payments on Small Entrepreneurs	Mixed-method (Survey + Interviews, n=140)	Regression (β=0.47, $p < 0.01$)	Digital payments enhance cash flow management for entrepreneurs.
9	Iyer & Shukla (2023)	Demographic Factors and Digital Payment Usage	Quantitative survey (n=275)	Chi-square test (χ^2=11.32, $p < 0.05$)	Age and income significantly influence the frequency of digital payments.
10	Das et al. (2022)	Security Concerns in Digital Payment Adoption	Quantitative (n=180)	Logistic regression ($p < 0.01$)	Security concerns remain a major barrier to digital payment adoption.

Objectives

- To examine the key factors driving the adoption of digital payment systems in India.
- To analyze the socio-economic impact of digital payments on consumers and businesses.

Material and Methodology

This section provides an overview of the research design, sampling, data collection, and statistical tools, utilized to examine digital payments in India.

Research Design

A **Descriptive research design** is employed in this study to investigate the key factors of digital payment adoption and assess its socio-economic effects. This approach enables a deeper understanding on the trends, challenges, and behaviours of consumers and businesses.

Study Area

In Jaipur, Rajasthan, a significant city with a developing digital payment environment, the study was carried out. Jaipur examines digital payment uptake across consumer and corporate demographics.

Sample Selection

Employing a **random sample method,** representation across business sectors and consumer groups was assured. Participants were chosen based on frequent digital payments use.

- **Sample Size**: 165 respondents
- **Consumers**: 105 respondents
- **Small Business Owners**: 60 respondents

Inclusion Criteria

- Participants aged 18 years and above.
- Individuals and businesses actively using digital payment systems for at least six months.
- Respondents residing in Jaipur, Rajasthan.

Exclusion Criteria

- Respondents unfamiliar with digital payment systems.
- Individuals unwilling to participate in the survey.

Data Collection Methods

A structured questionnaire was employed for data collection, with both online and in-person distribution. It was organized into three primary parts.

- **Demographic Information**: Age, gender, education, income level, and business type.
- **Adoption of Digital Payments**: Frequency of use, preferred platforms, and factors influencing adoption.
- **Socio-Economic Impact**: Perceived benefits, financial inclusion, and business efficiency.

The questionnaire featured **closed-ended** questions and a **5-point Likert scale** (ranging from 1 = "Strongly Disagree" to 5 = "Strongly Agree") to gather quantitative data.

Statistical Tools and Data Analysis

The data was analysed employing IBM SPSS software, using various statistical methods to extract meaningful insights.

- **Descriptive Statistics**: Employed to summarize adoption and demographic data by calculating means, frequencies, and standard derivations.
- **Chi-Square Test**: Used to examine how demographic characteristics and the use of digital payments are related.
- **Regression Analysis**: To determine the main drivers of drivers of drivers of digital payment uptake and evaluate their socioeconomic effects, regression analysis is utilized.
- **ANOVA (Analysis of Variance)**: Used to investigate how various demographic and professional groups accept digital payments.

Validity and Reliability

- **Pilot Study**: A pilot study with 20 participants ensured the questionnaire was clear, relevant, and comprehensive.
- **Cronbach's Alpha**: A Cronbach's Alpha score of 0.84 indicated its strong reliability.

Ethical Considerations

- **Informed Consent:** Participants were fully informed about the study's goals and offered their consent before participating.
- **Confidentiality**: Respondents personal data was kept secret and used only for research.
- **Compliance**: The research followed with ethics guidelines to safeguard participants well-being and data.

Data Analysis and Interpretation

- **Objective 1: To examine the key factors driving the adoption of digital payment systems in India.**

Hypothesis	Statistical Method	Result	Interpretation
$H1_1$: There is a significant relationship between convenience and the adoption of digital payment systems.	Descriptive Statistics (Mean = 4.35, SD = 0.68)	**Accepted** (87.2% agreement)	Convenience is the most significant driver of digital payment adoption, as a majority of respondents find it easy and accessible.
$H1_2$: Transaction speed significantly influences the adoption of digital payment systems.	Descriptive Statistics (Mean = 4.22, SD = 0.74)	**Accepted** (84.5% agreement)	Faster transactions motivate users to adopt digital payments, as indicated by high agreement.
$H1_3$: Cashback and rewards have a positive impact on the adoption of digital payment systems.	Descriptive Statistics (Mean = 3.89, SD = 0.91)	**Accepted** (77.8% agreement)	Incentives like cashback and rewards play a moderate but significant role in encouraging digital payment usage.
$H1_4$: Security and privacy concerns negatively influence the adoption of digital payment systems.	Descriptive Statistics (Mean = 3.45, SD = 1.02)	**Partially Accepted** (68.5% agreement)	While some respondents express concerns, the overall influence of security on adoption remains moderate.
$H1_5$: Government initiatives (e.g., UPI) positively influence the adoption of digital payment systems.	Descriptive Statistics (Mean = 4.01, SD = 0.79)	**Accepted** (80.3% agreement)	Government-backed platforms like UPI significantly drive digital payment adoption through ease of use and accessibility.

The study reveals that ease ($H1_1$) and fast transaction ($H1_2$) times are the important drivers of digital payment adoption. Rewards like cashback ($H1_3$) also have crucial impact, while security concerns ($H1_4$) have moderate effect. Government- backed initiatives, such as UPI ($H1_5$), are highly successful in fostering digital transactions. To rise acceptance, aiming on user ease, security, and continued government support is important.

- **Objective 2: To analyze the socio-economic impact of digital payments on consumers and businesses**

Hypothesis	Statistical Method	Result	Interpretation
$H2_1$: Digital payment systems significantly enhance financial inclusion across different demographic groups.	Regression Analysis ($\beta = 0.52$, $p = 0.001$)	**Accepted** (Significant)	Digital payments have a positive and statistically significant impact on financial inclusion, particularly in underbanked demographics.
$H2_2$: There is a positive relationship between the adoption of digital payments and business efficiency.	Regression Analysis ($\beta = 0.48$, $p = 0.002$)	**Accepted** (Significant)	Digital payments improve operational efficiency for businesses by reducing cash handling and enabling faster transactions.
$H2_3$: Digital payment systems significantly influence consumer spending behavior.	Regression Analysis ($\beta = 0.43$, $p = 0.005$)	**Accepted** (Significant)	Consumers using digital payments exhibit higher spending, suggesting a behavioral shift towards increased consumption.
$H2_4$: Digital literacy positively impacts the socio-economic benefits derived from digital payment systems.	Regression Analysis ($\beta = 0.29$, $p = 0.021$)	**Accepted** (Significant)	Higher digital literacy correlates with better socio-economic outcomes, as informed users are more likely to adopt and benefit from digital payments.
$H2_5$: Demographic factors (age, education, and income) significantly affect the adoption of digital payment systems.	Chi-Square Test (Age: $p = 0.032$, Education: $p = 0.009$, Income: $p = 0.014$)	**Accepted** (Significant)	Age, education, and income levels significantly influence digital payment adoption, with younger, better-educated, and higher-income groups leading adoption.

Digital payment systems are found to expand financial access ($H2_1$) and boost business efficiency ($H2_2$). The research finds that digital payments influence consumer spending habits ($H2_3$), with more transactions and increased spending. Digital literacy ($H2_4$) is a key factor in maximizing the benefits of digital payment systems. Age, education, and income level ($H2_5$) are found to be crucial factors in shaping digital payment adoption patterns. Fostering digital literacy and improving access for lower-income groups can maximize the benefits of digital payment systems.

Findings and Conclusion

A research on digital payment adoption in India emphasizing main points and socio-economic advantages. Convenience, transaction speed, and incentives such cashback encourage adoption, while security concerns pose moderate obstacles. Government initiatives, like UPI, promote adoption with user-friendly solutions.

Digital payments foster financial inclusion, business efficiency, and influence consumer spending habits. Digital literacy is vital for maximising advantages, and demographic characteristics such as age, education, and income significantly impact adoption patterns.

In conclusion, digital payment adoption in India is driven by convenience, incentives, and supportive policies. While digital payments have improved financial inclusion and efficiency, addressing security concerns and fostering digital literacy is vital for sustained growth. Future efforts should prioritize consumer trust, digital infrastructure expansion, and inclusion policies to ensure equitable distribution of benefits and broader socio-economic development.

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