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## *Editorial . . . . .*

The articles received for journal is of wide field, traversing from Extraterritorial Mergers, Power Industry's Commercial and Technical loss, Crypto currency, India's Telecom Sector, Customer Loyalty Programs, Consumer's Attitude and Buying Behaviour of Organics / Green tea to the field of Preparedness before Natural disaster in Food and Nutrition Security with respect to economic and administrative aspect.

Extraterritorial mergers need to be demonstrated in a global market because the mergers extend the anti-competitive effects to the other parts of the world, externally from where they originate. Multiple notification costs can be reworded and also legal conflicts between the countries can also be minimized by active regulatory authorities.

Electric energy production is the crucial factor in the economic development & progression of a country. The reduction of Aggregate Technical and Commercial Losses (AT & C) is an immense necessity for every utility services in the world as because these all services share the burden of developmental activities of the sector as well as the society as a whole Infrastructural limitations for deficiency results in technical losses and commercial losses are accrued to the human factory. For reaping efficiencies in the power sector the evaluation and minimization of AT&C losses will help the economic development to take its due path without hindrances.

The year 2022 observed a unique phenomenon which drew the world's attention to the absorbently high rise and unusual fall of the crypto currency in the financial market. When the whole were studied by the investors it was felt that mostly students are interested in this type of investments who are of the age of 18-24 yrs. The future and stability of this innovative financial technique have compelled the researchers to pay attention to the experiences and perspectives of the students and how their potential future behaviour will be guided by this tremor in the crypto currencies market.

Planning of Strategy development before any natural disaster involves cost by the stakeholders including both the Government of the country at any level & affected population of the locality hit by the phenomena of disaster. The incidence of natural calamities are mainly affecting the human being in terms of their capacities to maintain themselves. The stock and availability of food which affects mostly the children, age old person and woman of the household as well as the population are the key factors in the re-thinking process of government and planning authority in

the preparedness for the disaster strike. It is very important to know the level and status of action in what way the government is keen to make early and quick responses in maintaining the food and nutrition securely in an affected area for mitigation of challenges faced by the population.

The financial distress in Indian Telecom sectors have significantly affected the Indian Economy and there is a requirement of scaling these distress with proven tools and techniques. The tariff hikes leading to subscriber losses, high spectrum costs, intense competition between major players viz. Reliance, Jio, Airtel, Vodafone, and the presence of over-the-top (OTT) services which do not proportionately contribute to the costs of network infrastructure. Telecom equipment theft is also an emerging issue. Considering the sector as a large tariff-generating platform, apart from profiting from telecom infrastructure the sector should also contribute to network costs together with a pledge of affordable and sustainable digital connectivity.

For maximization of financial outcomes, the business firms should technically retain their customer base perennially in the form of loyalty. Increasing revenue through higher customer retention, larger average order values and reduced customer acquisition costs etc. are the key components of a customer loyalty program and can have a significant financial influence on a business house. And these ultimately lead to improved profitability by instigating repeat purchases and consistent, positive marketing from loyal customers which costs less to retain them and improved targeted marketing.

India's social structure is having an embracing character of cultural behaviour knitting all citizens with non-toxicating warm beverage offerings often in every strata of social life irrespective of rich and poor. Contemporary world is more conscious of environmental issues, which led them to be significant in purchasing organic green tea rather than the classical concept of tea. Their buying behavior is also a research topic in this challenging world.

Silchar,  
10<sup>th</sup> December, 2024

Dr. Sarbani Dutta Dev Choudhuri  
Chief Editor  
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# Regulation of Extra-Territorial Mergers: Legal Frameworks and Implications in a Globalized Economy

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## Abstract

Extraterritorial mergers, also known as cross-border mergers, refer to the consolidation of companies from different countries, requiring course plotting through a complex array of legal, financial, and regulatory environments. These mergers are significantly shaped by a web of international laws, domestic regulations, and economic policies that aim to promote fair competition and protect consumer welfare. As global markets and economies become more intertwined, the conduct of businesses increasingly has implications that extend beyond national borders. Consequently, regulatory authorities are expanding their jurisdictional reach to address these cross-border activities. This paper adopting doctrinal research methodology based on secondary sources delves into the regulatory frameworks governing extraterritorial mergers, with specific emphasis on antitrust and competition laws, foreign investment regulations, and securities regulations. This paper contends a detailed analysis of India's stance on extraterritorial mergers, focusing on the relevant provisions of the Companies Act, the Foreign Exchange Management Act (FEMA), and the Competition Act, 2002. By examining key legal provisions and landmark cases, this paper aims to provide a comprehensive understanding of the complexities and potential advantages associated with extraterritorial mergers in today's globalized economy. This analysis highlights the challenges firms face in ensuring compliance with multiple jurisdictions and explores the opportunities these mergers present for business expansion and growth across international markets.

**Keywords:** Extraterritorial Mergers, Cross-Border Mergers, Competition Law, Antitrust Law, Foreign Investment, Securities Regulations, Indian Legal Framework, Competition Commission of India, International Law.

## 1. Introduction

Extraterritorial mergers often referred to as cross-border mergers, occur when companies from different countries merge to form a single entity. These mergers are complex transactions that involve navigating a multitude of legal, financial, and regulatory considerations, which go beyond those encountered in domestic mergers. In the era of globalization, extraterritorial mergers have become a vital strategy for companies seeking to expand their market presence, acquire new technologies, access diverse resources, and achieve competitive advantages on a global scale.

The concept of extraterritorial mergers is heavily influenced by a range of legal frameworks, including international laws, treaties, agreements, and the domestic laws of the countries involved. These mergers are further shaped by antitrust and competition laws, which are designed to prevent anti-competitive practices and ensure a fair market environment. The increasing interdependence of global markets means that the conduct of market participants can have far-reaching effects, often crossing national borders and impacting economies worldwide. As such, regulatory authorities may find it necessary to extend their oversight beyond their own territories to address competitive harms and ensure market integrity.

Competition law plays a crucial role in regulating extraterritorial mergers. It is structured with the objective of maximizing consumer welfare and enhancing market efficiency, aiming to achieve a perfectly competitive market where price, quality, and innovation thrive. The legislative practices of regions such as the European Union (EU) and the United States (US) serve as key examples of how competition laws can be applied extraterritorially to regulate mergers and acquisitions involving foreign companies. The EU, for instance, emphasizes harmonization in its approach, while the US has developed the "effects doctrine" to assert jurisdiction over foreign entities that impact its markets. The benefits and challenges of extraterritorial assertion of jurisdiction in merger cases are critical considerations in the global marketplace, as mergers can extend anti-competitive effects beyond their countries of origin.

## 2. Literature Review

Extraterritorial jurisdiction is often justified on the basis of the "effects doctrine", which posits that a nation can assert jurisdiction over conduct that occurs outside its borders if it produces significant effects within its market (Fox, 2003). In *Extraterritorial Antitrust: Lessons from the United States and the European Union*, Fox (2003) explores the rationale for the effects doctrine in U.S. antitrust law, particularly through the Sherman Act and the Clayton Act. The European Union (EU) and the United States (U.S.) have taken distinctive yet comparable approaches to extraterritorial mergers. While the U.S. pioneered the effects doctrine, the EU has adopted it through provisions in the Treaty on the Functioning of the European Union (TFEU), specifically Article 101 and Article 102, which prohibit anti-competitive agreements and the abuse of dominant positions in ways that affect the EU market (Gerber, 2010). This was notably applied in the *General Electric/Honeywell* case, where the EU blocked a merger that the U.S. authorities had approved, demonstrating divergent regulatory approaches and the tensions these can create (Gellhorn et al., 2011).

Kapoor and Choudhury (2018) argue that the Act is significant as it introduces competition law principles tailored for the country's developing market economy, with specific provisions in Section 5 and Section 6 that require mandatory notifications for mergers and acquisitions meeting certain asset and turnover thresholds. Section 32 of the Act extends the jurisdiction of the Competition Commission of India (CCI) to cover activities outside India if they have a material impact on the Indian market. Kapoor and Choudhury highlight the Act's alignment with global practices, including its emphasis on consumer

welfare and competitive neutrality. As seen in the *CCI v. SAIL* decision, which underscores the CCI's active approach to regulating combinations (Dhavale, 2020)? Dhavale points out that while India's regulatory practices draw on global principles, the CCI has emphasized protecting local markets and smaller businesses that may be disproportionately affected by cross-border mergers.

Woodcock (2017) discusses the unique regulatory hurdles faced in cross-border mergers, especially regarding compliance with multiple antitrust authorities. His work on "Global Mergers and Antitrust Law: The Challenge of Enforcement" highlights the role of international cooperation in reducing the friction of regulatory inconsistencies. Scholars such as Posner (2016) have also explored the need for harmonizing competition law frameworks across jurisdictions to manage the complexity of extraterritorial mergers.

Morrison and Foerster (2019) emphasize the complexities of securities regulation in cross-border mergers in their article on securities law's extraterritorial reach, arguing that these regulations are critical for mitigating the risks of misinformation and market manipulation. Morrison (2010) introduces a "bright-line" test in the *Morrison v. National Australia Bank* case, limiting the extraterritorial reach of U.S. securities laws to transactions that occur within the U.S., which has since influenced subsequent cross-border regulatory standards and court rulings. Maher (2021) advocates for strengthening cross-border cooperation and harmonizing legal standards, particularly through international organizations like the International Competition Network (ICN) and the Organisation for Economic Co-operation and Development (OECD), which facilitate collaboration and knowledge-sharing among regulatory bodies. Salacuse (2018) discusses how cultural, economic, and political differences among countries impact the acceptance and application of extraterritorial regulations. He notes that emerging markets often adopt protectionist measures that can create regulatory barriers for foreign mergers.

Overall, the literature underscores the intricate balance between national sovereignty and international economic interdependence in the regulation of extraterritorial mergers. Scholars agree on the necessity of developing cohesive regulatory frameworks that address both market-specific and global concerns. Effective regulatory mechanisms that integrate aspects of international law, harmonize competition policies, and promote cross-border collaboration are essential to managing the increasing complexity of cross-border mergers in a globalized economy.

### 3. Objectives of the Study

This paper attempt-

1. To examine the regulatory frameworks governing extraterritorial mergers, focusing on major jurisdictions such as the U.S., EU, and India.
2. To analyse the legal provisions within India's Companies Act, FEMA, and Competition Act in relation to extraterritorial mergers.

3. To study the implications of regulatory interventions by authorities like Competition Commission of India (CCI) on cross-border mergers and challenges for firms in achieving compliance.
4. To explore the opportunities that extraterritorial mergers present for business expansion in a globalized economy

This paper, further, aims to explore the various rules and regulations governing extraterritorial mergers, with a particular focus on the Indian perspective. By examining the legal frameworks, competition laws, and relevant case studies, this study seeks to provide a comprehensive understanding of the regulation of extraterritorial mergers and the implications for companies operating in a globalized economy.

#### **4. Methodology**

This study approaches the objectives from the perspective of doctrinal research methodology based on secondary sources and employs qualitative research methodology to examine the prevalent statutory provisions, case law, and regulatory guidelines. Key sources include legislative texts, competition authority guidelines, and judicial interpretations from India, the U.S., and the EU. A Comparative legal analysis is conducted to identify variances in regulatory frameworks and to assess the effectiveness of extraterritorial enforcement in maintaining competition. Case studies of landmark decisions by the CCI, Federal Trade Commission (FTC), and European Commission (EC) provide practical insights into jurisdictional application and enforcement dynamics.

#### **5. Regulations Governing Extraterritorial Mergers in International Law**

International law provides a foundational framework for cross-border transactions, including mergers and acquisitions. Key principles of international law, such as sovereignty, jurisdiction, and comity, shape the legal landscape for extraterritorial mergers. Sovereignty refers to the authority of a state to govern itself without external interference, while jurisdiction pertains to the power of a state to apply its laws to persons, property, and events. Comity, on the other hand, is the practice of legal reciprocity, where one jurisdiction may give effect to the laws and judicial decisions of another jurisdiction out of respect and mutual convenience. International treaties and conventions also play a significant role in governing cross-border transactions. For instance, the Hague Convention on the Recognition and Enforcement of Foreign Judgments in Civil and Commercial Matters provides a framework for the mutual recognition and enforcement of judicial decisions, which is critical in the context of extraterritorial mergers. Additionally, bilateral and multilateral agreements between countries may establish specific rules and procedures for mergers and acquisitions involving companies from different jurisdictions. Each country involved in an extraterritorial merger will have its own set of laws and regulations governing mergers and acquisitions. These laws address various aspects of corporate governance, antitrust, taxation, labor, environmental regulations, and intellectual property rights. Domestic laws are crucial in determining the procedural requirements and substantive standards for approving or rejecting a merger.

For example, in the United States, the Hart-Scott-Rodino Antitrust Improvements Act requires companies to file pre-merger notifications with the Federal Trade Commission (FTC) and the Department of Justice (DOJ) for mergers exceeding certain thresholds. In the European Union, the EU Merger Regulation establishes a system for the control of concentrations between undertakings, requiring companies to notify the European Commission of any merger that meets specified turnover thresholds. These domestic laws ensure that mergers and acquisitions do not adversely affect competition and consumer welfare in the respective jurisdictions.

## **6. Antitrust and Competition Law**

Antitrust and competition laws are central to the regulation of extraterritorial mergers. Competition authorities in different jurisdictions have the authority to review and approve mergers that may have an impact on their markets. The primary goal of antitrust laws is to prevent mergers that would substantially lessen competition, create monopolies, or lead to the abuse of dominant market positions.

In the United States, the FTC and the DOJ are responsible for enforcing federal antitrust laws, including the Sherman Act, the Clayton Act, and the Federal Trade Commission Act. These laws prohibit mergers that may result in anti-competitive effects, such as price-fixing, reduced output, diminished innovation, and reduced consumer choice. Similarly, in the European Union, the European Commission is empowered to review mergers under the EU Merger Regulation to ensure that they do not impede effective competition in the common market.

Competition authorities assess the competitive effects of mergers based on factors such as market shares, concentration levels, potential entry barriers, and the countervailing power of buyers. They may impose conditions or remedies, such as divestitures or behavioural commitments, to address any anti-competitive concerns. In some cases, competition authorities may prohibit a merger altogether if it is deemed to significantly harm competition.

## **7. Foreign Investment Regulations**

Foreign investment regulations are another critical aspect of the legal framework governing extraterritorial mergers. Many countries have established specific rules and review processes for foreign investments, particularly in sensitive industries such as defence, telecommunications, natural resources, and critical infrastructure. These regulations are designed to protect national security, public order, and strategic interests.

In the United States, the Committee on Foreign Investment in the United States (CFIUS) is responsible for reviewing foreign investments that may pose national security risks. CFIUS has the authority to block or impose conditions on transactions involving foreign entities that seek to acquire control over U.S. companies. Similarly, in the European Union, the Foreign Direct Investment (FDI) Screening Regulation establishes a framework for member states to review foreign investments that may affect security or public order. Companies involved in extraterritorial mergers must comply with foreign investment

regulations by obtaining the necessary approvals from relevant authorities. Failure to do so can result in significant legal and financial consequences, including fines, unwinding of transactions, or even criminal penalties.

Securities regulations play a vital role in ensuring transparency and fairness in extraterritorial mergers involving publicly traded companies. These regulations require companies to disclose material information to shareholders and regulatory authorities, providing them with the necessary information to make informed decisions.

In the United States, the Securities and Exchange Commission (SEC) enforces federal securities laws, including the Securities Act of 1933 and the Securities Exchange Act of 1934. These laws mandate the disclosure of information related to mergers and acquisitions, such as financial statements, business descriptions, risk factors, and details of the transaction. The SEC also has the authority to review and approve proxy statements and registration statements filed by companies involved in mergers. Similarly, in the European Union, the Prospectus Regulation and the Market Abuse Regulation establish requirements for the disclosure of information related to securities offerings and mergers. Companies must provide accurate and complete information to investors, ensuring that they have access to all relevant facts and can assess the risks and benefits of the transaction.

## **8. India's Position on Extraterritorial Mergers**

India has a well-established legal framework for regulating extraterritorial mergers involving Indian companies and foreign entities. The key legal instruments governing such mergers include the Companies Act, the Foreign Exchange Management Act (FEMA), and the Competition Act, 2002. These laws provide the structure for facilitating and overseeing cross-border mergers while ensuring compliance with regulatory requirements and protecting competition in the Indian market. The Companies Act, 2013, is the primary legislation governing mergers and acquisitions involving Indian companies. It provides provisions for various types of mergers, including amalgamations, mergers, and demergers. Section 234 of the Companies Act, 2013, specifically addresses cross-border mergers and provides a framework for mergers between Indian companies and foreign companies.

Under Section 234, an Indian company can merge with a foreign company, subject to the approval of the Reserve Bank of India (RBI) and compliance with the rules and regulations prescribed by the central government. The merger process involves several steps, including the preparation of a scheme of merger, approval by the boards of directors and shareholders of the companies involved, and sanction by the National Company Law Tribunal (NCLT).

### **8.1 Foreign Exchange Management Act (FEMA)**

The Foreign Exchange Management Act (FEMA) regulates foreign exchange transactions in India, including those related to mergers and acquisitions involving foreign entities. The Reserve Bank of India (RBI) oversees compliance with FEMA regulations and grants approvals for inbound and outbound investments in the context of cross-border mergers. Under FEMA, any cross-border merger involving an Indian company and a foreign

company must comply with the Foreign Exchange Management (Cross Border Merger) Regulations, 2018. These regulations classify cross-border mergers into two categories: inbound mergers and outbound mergers. In an inbound merger, a foreign company merges into an Indian company, while in an outbound merger, an Indian company merges into a foreign company.

The regulations stipulate various conditions for cross-border mergers, including the valuation of assets, transfer of securities, compliance with applicable laws, and reporting requirements. The RBI may impose additional conditions or restrictions to ensure compliance with foreign exchange regulations and protect India's economic interests.

## **8.2 Competition Law and extra territorial mergers**

The Competition Act, 2002, and the Competition Commission of India (CCI) play a crucial role in regulating combinations, including mergers and acquisitions that may have an appreciable adverse effect on competition in India. The CCI is responsible for reviewing mergers and acquisitions to ensure that they do not result in anti-competitive practices or abuse of dominance in the Indian market. Under the Competition Act, 2002, any combination that meets certain threshold criteria must be notified to the CCI for approval. The CCI assesses the impact of the combination on competition in the relevant market and may impose conditions or modifications to address any competition concerns. In some cases, the CCI may prohibit a merger if it is likely to cause significant harm to competition. Extraterritorial mergers involving Indian entities or foreign entities with a nexus to India may trigger the notification requirement under the Competition Act if they meet the prescribed thresholds. The CCI has jurisdiction to review and approve such mergers to ensure they do not have an adverse impact on competition in the Indian market.

## **8.3 Relation between Sections 5 and 6 of the Competition Act, 2002**

In the context of Indian competition law, Sections 5 and 6 of the Competition Act, 2002, are crucial for understanding the jurisdictional aspects of extraterritorial mergers.

Section 5 of the Competition Act, 2002, deals with the extraterritorial jurisdiction of the Competition Commission of India (CCI). It empowers the CCI to inquire into any anti-competitive agreements or abuse of dominance occurring outside India but having an adverse effect on competition within India. Extraterritorial mergers may come under the purview of Section 5 if they involve anti-competitive conduct, such as cartel agreements or abuse of dominance, that affects competition in the Indian market. For example, if two foreign companies engage in a merger that leads to a dominant position in a relevant Indian market, the CCI may invoke Section 5 to investigate and take appropriate action to safeguard competition. The CCI's extraterritorial jurisdiction ensures that anti-competitive practices by foreign entities do not harm Indian consumers and businesses.

Section 6 of the Competition Act, 2002, regulates combinations, which include mergers, amalgamations, and acquisitions that meet certain threshold criteria. The provision requires parties to notify the CCI and obtain its approval before consummating a combination that exceeds specified asset and turnover thresholds. The purpose of this

requirement is to prevent combinations that may have an appreciable adverse effect on competition in India. Extraterritorial mergers involving Indian entities or foreign entities with a nexus to India may trigger the notification requirement under Section 6 if they meet the prescribed thresholds. The CCI reviews such mergers to ensure they do not result in anti-competitive practices or abuse of dominance in the Indian market. The notification process allows the CCI to assess the potential impact of the merger on competition and take appropriate measures to protect consumer welfare.

#### **8.4 Extraterritorial Jurisdiction of the CCI under Section 32 of the Competition Act, 2002**

Section 32 of the Competition Act, 2002, grants the CCI extraterritorial jurisdiction to inquire into any anti-competitive agreements or abuse of dominance occurring outside India but having an adverse effect on competition within India. This provision is relevant in the context of extraterritorial mergers that involve anti-competitive conduct, such as cartel agreements or abuse of dominance, that impacts competition in the Indian market. The CCI can investigate such mergers and take appropriate action to address any anti-competitive behavior. This includes imposing fines, requiring divestitures, or prohibiting certain conduct to restore competition. Section 32 ensures that the CCI can protect Indian markets from anti-competitive practices by foreign entities, thereby promoting fair competition and consumer welfare.

#### **8.5 Judiciary on Extraterritorial Mergers**

##### **8.5.1. IMS Health and NDC Health Merger Case**

One of the landmark cases involving extraterritorial mergers is the merger between IMS Health and NDC Health, two U.S.-based companies in the healthcare data industry. The Federal Trade Commission (FTC) challenged the merger, alleging that it would substantially lessen competition in violation of U.S. antitrust laws. The case highlighted the FTC's role in reviewing and challenging mergers with potential anti-competitive effects, even if they involve companies primarily operating within the United States. It underscored the importance of analyzing the competitive effects of mergers in relevant geographic markets, regardless of whether they are domestic or extraterritorial.

##### **8.5.2. Morrison v. National Australia Bank Ltd. (2010)**

In the context of securities law, the U.S. Supreme Court's decision in *Morrison v. National Australia Bank Ltd.* (2010) established a "bright-line" test for determining the extraterritorial reach of U.S. securities laws. The court held that U.S. securities laws apply only to transactions that occur on U.S. exchanges or involve securities listed on U.S. exchanges, regardless of where the misconduct originated or where the securities were purchased.

The *Morrison* decision has significant implications for extraterritorial mergers involving publicly traded companies, as it limits the applicability of U.S. securities laws to certain transactions. This case highlights the challenges of regulating cross-border transactions and the need for clear legal standards to determine jurisdictional reach. While

there have not been many notable competition law cases specifically addressing extraterritorial mergers in India, competition law jurisprudence is evolving. As cross-border transactions continue to increase, Indian courts and regulatory authorities may encounter more cases involving extraterritorial mergers and develop further legal principles to address these complex issues.

## **9. Conclusion**

Extraterritorial mergers offer companies significant opportunities for growth, innovation, and market expansion on a global scale. However, they also present challenges related to legal compliance, cultural integration, and regulatory scrutiny. Companies engaged in extraterritorial mergers must carefully assess risks, conduct thorough due diligence, and engage in proactive planning to navigate the complexities of cross-border transactions effectively. Despite the challenges, extraterritorial mergers remain an essential strategy for companies seeking to enhance their competitiveness and capitalize on opportunities in the global marketplace. The regulation of extraterritorial mergers is crucial to maintaining fair competition, protecting consumer welfare, and ensuring market integrity.

The Competition Act, 2002, plays a vital role in regulating extraterritorial mergers that impact competition in the Indian market. It provides the legal framework for the Competition Commission of India (CCI) to investigate, review, and take appropriate action to ensure that such mergers comply with Indian competition law and promote fair competition and consumer welfare. Companies engaged in extraterritorial mergers must carefully navigate the provisions of the Competition Act and cooperate with the CCI to obtain necessary approvals and address any competition law concerns. As the global economy continues to evolve, the regulation of extraterritorial mergers will become increasingly important. Policymakers, regulators, and companies must work together to develop robust legal frameworks and regulatory mechanisms that balance the benefits of cross-border mergers with the need to protect competition and consumer interests. Through effective regulation and international cooperation, the challenges of extraterritorial mergers can be managed, ensuring that they contribute positively to global economic growth and development.

### **9.1 Scope for Further Research**

Future research on the regulation of extraterritorial mergers could investigate several areas that remain underexplored. First, there is a need for more comparative studies examining the regulatory approaches of different countries and their implications for global merger practices. Second, research could focus on the evolving role of technology and digital platforms in cross-border mergers, particularly regarding how digital market dynamics affect competition and regulatory policies. Additionally, the impact of extraterritorial mergers on emerging economies and their unique challenges could be further explored, especially in contexts where competition law infrastructure is still developing. Another critical area for further study is the effectiveness of international cooperation mechanisms, such as the International Competition Network (ICN), in coordinating regulatory actions and

resolving conflicts across jurisdictions. Finally, case studies of high-profile extraterritorial mergers, particularly those involving digital and tech giants could provide a deeper understanding of how regulations adapt to rapid changes in market structures and technologies, thereby informing future policy and legislative developments.

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# The Overall Impact of Aggregate Technical and Commercial (AT&C) Losses in the Power Industry

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## Abstract

*Power industries have long struggled with AT&C (Aggregate Technical and Commercial) losses, which results in significant financial losses, increased electricity rates, and limited power supply. It is critical to examine the power sector's major challenges and their solutions. Reducing AT&C losses is critical because it improves financial stability, decreases energy bills, increases the electricity supply and can also help to reduce the carbon footprint of the power industry. It is critical to research and implement various ways aimed at reducing AT&C losses. These may include improving metering and billing systems, devoting resources to technologies and infrastructure, and implementing efficient regulatory frameworks. It is vital to evaluate any potential synergies between minimising AT&C losses and achieving overall development, such as increasing energy efficiency and improving the quality of power supply. These synergies will help reduce AT&C losses while also advancing overall development.*

**Keywords:** AT&C losses, technical losses, non-technical losses.

## 1. Introduction

Electricity and the energy sector are essential to modern society and to the advancement of any country's economy, social welfare, and overall growth. Modern life is impossible without electricity, which powers everything from public institutions and hospitals to homes and schools. The electricity sector significantly contributes to economic growth by enabling the functioning of other industries including manufacturing, mining, and agriculture. Excessive AT&C losses (Aggregate Technical and Commercial losses) are a significant challenge for all power companies worldwide, notwithstanding their importance.

### Conceptual Framework

AT&C losses (Aggregate Technical and Commercial losses): When discussing all losses that occur during the generation, distribution, and transportation of electricity from power plants to end users, the term "AT&C loss" is often used in the energy sector. AT&C Loss is composed of two terms: technical loss and commercial loss. Technical losses, which include losses from transformers, transmission line resistance, and other losses that occur during the transmission and distribution of electricity, are those that arise from the inherent characteristics of the power system. These losses are often measured in units of electricity

lost due to technological inefficiencies in the system. The phrase "commercial loss" describes financial losses brought on by things like theft, inaccurate metering, and incorrect billing. These losses are often measured in terms of revenue lost due to these factors.

In simple words, AT&C losses are defined as the difference between the amount of electricity supplied and the amount billed to customers. AT&C loss is a critical metric that power utilities and regulators use to monitor the efficiency and effectiveness of the power system and identify areas where improvements can be made to reduce losses and increase revenues.

### Causes of AT&C Losses

AT&C losses are caused by a variety of factors. Some of such factors include:

- (i) **Technical losses:** These losses happen when power is transmitted and distributed because of resistance in cables and other equipment. The inefficiency of transformers, switchgear, and other equipment results in technical losses.
- (ii) **Non-technical losses:** These include losses brought on by theft, inaccurate meter readings, ineffective billing practices, and other issues. Non-technical losses can be caused by things like electricity theft, billing mistakes, and metering issues.
- (iii) **Illegal connections:** Illegal connections bypass the metering system, leading to non-technical losses. These connections are often made without the knowledge or consent of the utility company.
- (iv) **Lack of awareness among consumers:** Electricity is frequently wasted by consumers due to habits including keeping lights on when not in use, utilizing inefficient appliances, and making unauthorized connections. This may lead to losses that are not technical.
- (v) **Voltage fluctuations:** Voltage fluctuations can occur due to various factors, including overload, lightning, and voltage drops. These fluctuations can lead to technical losses.
- (vi) **Insufficient investment in infrastructure:** Inadequate investment in the transmission and distribution infrastructure can lead to technical losses due to outdated or inefficient equipment.
- (vii) **Inadequate maintenance of equipment:** To guarantee effective performance, electrical equipment needs to be maintained on a regular basis. Technical losses may result from equipment failure or inefficiency due to inadequate maintenance.
- (viii) **Inaccurate metering and billing:** Inaccurate metering and billing can cause non-technical losses, leading to revenue loss for the utility. This can occur due to errors in metering, billing, or theft.
- (ix) **Overloading of transformers and distribution equipment:** When the load on transformers and other equipment exceeds their capacity, it can cause damage and increase technical losses.

## **Impact of AT&C Losses in the Power Industry**

The power industry is significantly impacted by high AT&C losses. Firstly, they reduce the electrical industry's financial viability, which limits its ability to invest in new facilities and modernize outdated machinery. This in turn affects the reliability and caliber of the electrical supply, which has implications for the well-being of society and the growth of the economy.

Secondly, significant AT&C losses increase consumer electricity bills. This can lead to energy poverty since households may not be able to afford safe, affordable electricity. Productivity, education, and health are all impacted by this.

Lastly, because energy resources are used inefficiently, significant AT&C losses lead to a rise in greenhouse gas emissions. Climate change and the sustainability of the environment are affected by this.

## **2. Review of Literature**

B. Venkatesh, S. A. Khaparde and M. M. Beg in 2014 in their journal "A review of approaches for minimizing AT&C losses in distribution systems" provides an overview of different methods that can be used to minimize AT&C losses in distribution systems, including the use of distribution automation, energy-efficient devices, and smart grid technologies. The authors discuss the advantages and limitations of each approach and suggest areas for future research.

The journal "An overview of distribution system planning for minimizing AT&C losses" by P. Das and S. N. Singh in 2017 provides an overview of different planning strategies that can be used to minimize AT&C losses in distribution systems, including load forecasting, system design optimization, and feeder reconfiguration. The authors discuss the advantages and limitations of each approach and suggest ways to integrate them into a comprehensive planning framework.

In 2017, S. S. Sivanagaraju, R. P. Singh and S. C. Srivastava provides a comprehensive review of different techniques that can be used to detect power theft and reduce AT&C losses, including the use of smart meters, data analytics, and machine learning algorithms. The authors discuss the advantages and limitations of each technique and suggest ways to integrate them into a comprehensive anti-theft framework.

R. Kumar, A. Kumar, and M. Singh in their journal "A critical review of methods for estimating AT&C losses in power distribution systems" reviews different methods for estimating AT&C losses in power distribution systems, including the use of statistical models, energy accounting methods, and smart meter data analytics. The authors provide a detailed comparison of the strengths and weaknesses of each method and suggest strategies for improving accuracy.

The journal "A review of regulatory mechanisms for reducing AT&C losses in power distribution systems" provides a review of different regulatory mechanisms that can be used to reduce AT&C losses in power distribution systems, including the use of performance-

based regulation, revenue-cap regulation, and incentive-based regulation. The authors discuss the advantages and limitations of each mechanism and suggest ways to integrate them into a comprehensive regulatory framework.

### 3. Research Gap

After going through the available literature which could be accessed related to the paper, it has been found that several research works have been done on AT&C losses. It has also been found that various research studies have been carried out on reducing AT&C losses. But, no separate study has been carried out on the overall impact of AT&C losses in the power industry. So, it has been found that there is a great demand for such study to fill up the research gap in this area.

### 4. Objectives of the Study

1. To reduce impact of AT&C losses by addressing technical losses caused by power theft, unauthorized use of electricity and undeclared loads for enhancing the power quality.
2. To enhance the capacity and expertise of the energy sector to reduce AT&C losses and promote development.

### 5. Research Methodology

The methodology is based on published data and information and the observation method is also utilised.

### 6. Challenges In Reducing AT&C Losses:

Improving the overall efficiency of the power industry and the financial sustainability of power firms depend heavily on reducing AT&C loss. Nevertheless, cutting AT&C losses is fraught with difficulties. A handful of these difficulties are covered below:

- a. **Technical Challenges:** Technical losses are the result of power transmission and distribution system inefficiencies. In order to handle technological losses, investments must be made to update the aging infrastructure, include modern technology, and adhere to best practices. Regretfully, putting these modifications into practice could require a significant amount of time and money.
- b. **Non-technical Challenges:** Non-technical losses are those brought on by theft, inaccurate billing, and other business reasons. To minimise non-technical losses, power providers, regulators, and the government must cooperate to impose strict fines, implement effective billing systems, and improve customer service. Yet, implementing these regulations may be challenging due to a lack of political will, corruption, and inadequate enforcement.
- c. **Operational Challenges:** To lower AT&C losses, coordination between the government, regulators, and electrical firms is required. However, implementing these measures may be challenging due to operational problems such poor coordination, insufficient monitoring systems, and a lack of technical expertise. To overcome these challenges,

investments in capacity building, training, and effective management systems are required.

- d. **Financial Challenges:** A large investment in technology, training, and infrastructure enhancements is needed to reduce AT&C losses. Power companies could, however, have financial difficulties that make it difficult for them to devote enough funds to loss reduction programs. Additionally, consumers might be charged more to offset losses, which could spark pushback and opposition.
- e. **Regulatory Challenges:** Frameworks for regulations are essential for lowering AT&C losses. Regulatory obstacles, such as insufficient tariffs, feeble enforcement protocols, and a dearth of incentives for loss mitigation programs, could impede attempts to curtail losses. Furthermore, it might take some time to execute regulatory reforms, which would further postpone the decrease of losses.

## 7. Strategies For Reducing AT&C Losses

Strategies for reducing AT&C (Aggregate Technical and Commercial) losses can be broken down into several key points:

- a. **Theft Detection and Prevention:** Losses for power industry businesses are largely caused by electricity theft. By implementing techniques for its detection and prevention, such as tamper-proof meters, remote monitoring systems, and energy audits, theft can be discovered and decreased.
- b. **Strengthening Distribution Infrastructure:** By reinforcing and modernising the infrastructure through routine maintenance, equipment replacement, and the installation of new conductors, capacitors, and transformers, technical losses in the distribution system can be reduced.
- c. **Financial Incentives:** Encouraging utilities to take the necessary actions to reduce AT&C losses can be achieved by offering them financial rewards. In a similar vein, promoting the adoption of energy-saving devices and practices among consumers can reduce overall energy consumption as well as AT&C losses.
- d. **Encouraging Energy Efficiency:** Encouragement of energy-saving measures can help reduce overall energy consumption and, as a result, AT&C losses. Examples of these measures include the use of energy-efficient appliances, lighting, and building design.
- e. **Strengthening Customer Service:** By improving customer service through improved invoicing, payment, and communication practices, commercial losses can be reduced. Proper communication may help clients understand their invoices and promote timely payments, and effective payment systems can help lower the number of late payments.
- f. **Conducting Regular Audits:** It can be helpful to identify high-loss areas and develop mitigation strategies for them with the help of regular distribution system audits. Similar to this, finding areas where energy use can be reduced can be aided by regularly conducting energy audits for corporate and industrial clients.

## 8. Findings of the Study

After going through the challenges faced to reduce AT&C losses and the strategies to tackle the same, the below mentioned findings are identified:

- a. Technical losses caused by power theft, unauthorized use of electricity, and undeclared loads contribute to the increase of Aggregate Technical and Commercial (AT&C) losses, which can negatively impact the power industry.
- b. Upgrading the power transmission and distribution infrastructure is crucial for reducing the impact of AT&C losses, but it is a time-consuming and capital-intensive process.
- c. The lack of skilled and trained technicians can delay the identification of technical faults, leading to increased AT&C losses.
- d. Inaccurate billing and delayed billing cycles are two examples of billing faults that can negatively impact the development of the power sector by reducing income and escalating commercial losses.
- e. Coordination between electricity companies, regulators, and the government is necessary to reduce AT&C losses.
- f. The implementation of regulatory frameworks and the performance of the energy sector can be significantly impacted by a shortage of permanent staff and inadequate compensation for temporary workers. This can have an adverse effect on the industry.
- g. Reducing AT&C losses require significant investment in infrastructure upgrades, technology, and training, which can contribute to the development of the power sector.
- h. Power companies may face financial constraints that make it challenging to allocate sufficient resources towards loss reduction initiatives, which can negatively impact the performance of the industry.
- i. The implementation of necessary procedures to reduce AT&C losses might be impeded by operational issues, such as insufficient monitoring systems and insufficient technical experience. This can have an adverse effect on the performance of the industry.
- j. The challenges of lowering AT&C losses can be addressed by making investments in capacity building, training, and effective management systems, all of which can support the overall development.
- k. Failure to address AT&C losses can result in increased operational costs, reduced reliability of power supply, and financial losses for power companies, which can negatively impact the development.
- l. Investing in loss reduction measures can lead to a more efficient and reliable power system, which can improve the quality of life for consumers and support economic growth and contribute to the overall development.

- m. The cost of reducing losses may be passed on to consumers, potentially resulting in resistance and pushback from them, which can have implications on the development of the power sector.
- n. Implementing loss reduction measures may require a long-term commitment from power companies and government entities, which can promote sustainable development.

#### **9. Suggestions:**

For the purpose of reducing AT&C losses for attaining sustainable development, the following are suggested:

- a. Installing new conductors, capacitors, and transformers as part of an infrastructure upgrade can assist lower technical losses and boost distribution system efficiency, which will improve performance.
- b. Regularly carrying out fault analysis and load flow studies can assist in identifying system components that need to be upgraded, resulting in improved energy efficiency and performance.
- c. Equipment used in distribution systems needs to be maintained on a regular basis to guarantee maximum effectiveness and performance. As a result, there will be less technical losses and more effective energy consumption.
- d. The power sector can develop overall by reducing technical losses and increasing energy efficiency by replacing outdated equipment with new, energy-efficient technology.
- e. Reducing reactive power, increasing power factor, and lowering harmonics in the power supply can all help to lower technical losses, which will promote industry growth.
- f. Utilizing renewable energy sources such as solar and wind power can help reduce technical losses and improve the efficiency of the distribution system, leading to cost efficiency.
- g. Smart grid technology such as advanced metering infrastructure and distribution automation systems can reduce technical losses.
- h. Installing tamper-proof meters can help detect any unauthorized access, tampering, or disconnection of the electricity supply, leading to reduced energy losses.
- i. Implementing voltage regulation measures can reduce technical losses due to over or under-voltage conditions, leading to more efficient energy use and less environmental impact.
- j. Strict penalties should be imposed on those found guilty of theft to deter others from committing the same crime.
- k. Educating the public about the negative impact of electricity theft and the importance of reporting any suspicious activities can help reduce theft.

- l. Modern technology makes it possible to remotely monitor the supply of electricity, identify any irregularities in usage or patterns, and take appropriate measures to prevent potential theft and further the growth of the power sector as a whole.
- m. Conducting regular energy audits can help identify discrepancies in usage patterns, detect theft, and identify areas where energy efficiency can be improved.
- n. Offering performance-based contracts that reward utilities for achieving specific energy efficiency targets and reducing their AT&C losses.
- o. Providing financial incentives to utilities that demonstrate a reduction in their AT&C losses over a specific period promotes overall development.

## 10. Conclusion and Future Perspectives

Lowering aggregate technical and commercial (AT&C) losses is essential to a nation's ability to provide power efficiently. In addition to costing utilities money, the high incidence of AT&C losses has an impact on how consistently and well customers receive power. Using efficient tactics to cut AT&C losses is crucial for achieving sustainable growth. These tactics include enhancing metering and billing systems, making investments in cutting-edge technology, and putting in place efficient energy management systems. At present the overall AT&C loss in India has reduced approximately by 5% and has come down to 17% as compared to the last financial year 2021-22 when it was 22%. The limit of AT&C loss is set by the regulatory authority in charge of the electricity sector in a given jurisdiction. With respect to Assam, the AERC (Assam Electricity Regulatory Commission) has set the limit of AT&C loss for APDCL (Assam Power Distribution Company) as 15%.

Yet, there are a number of obstacles to lowering AT&C losses, including a lack of political will, insufficient investment, and bad governance. To overcome these obstacles, stakeholders such as regulators, utility providers, utility customers, and legislators must work together to establish an environment that favours the decrease of AT&C losses.

In conclusion, reducing AT&C losses for sustainable development requires stakeholder cooperation, successful tactics, and advanced technologies, but if solved, it offers financial sustainability, reliable power, and reduced greenhouse gas emissions.

However, the present paper is confined to the overall AT&C losses, challenges faced and strategies to reduce the same. So, there is further scope to study the same with respect to individual power distribution companies. Moreover, comparative studies can also be carried out between different power distribution companies to study the impact of AT&C losses on sustainable development.

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# Students' Perception Towards Cryptocurrency: A Case Study in the Dibrugarh District of Assam

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## Abstract

*The purpose of the current study is to identify students' perceptions regarding cryptocurrency and to explore the challenges perceived by students investing in cryptocurrency. The researchers employ an empirical design for this study by collecting the data primarily. The prominence of the research is assessed by studying the perceptions of college-going students of Dibrugarh district. The simple random sampling method is applied to gather the responses of the students by distributing Google Forms through mail and WhatsApp. The study indicates that college-going students have knowledge and awareness of cryptocurrency. The challenges perceived by the students are virtual hacking, the risk of high volatility, the existence of a virtual platform, high financial risk and no intervention of financial authority. Geographical limitation is found as the limitation of the current study since this study confines only one district of Assam. It is observed that young minds are more prone to be aware of new trends irrespective of their fashion or investment avenues. Hence; the study focuses on the students' perceptions regarding cryptocurrency or digital assets recognized as a brand-new blockchain-based investment avenue.*

**Keywords:** *Cryptocurrency, Awareness, students, perception, Challenges*

## 1. Introduction

People in developed and emerging nations have started to favour cryptocurrencies more in the last several years. The cryptocurrency market has evolved erratically and at an unprecedented speed throughout its short lifespan (Farell, 2015). A cryptocurrency is a kind of peer-to-peer digital trade where money units are created and distributed using encryption. The application of encryption technologies implies that cryptocurrency acts both as a currency and as a digital accounting system.

Although merchants are beginning to formally address the virtual currency market, the viability of the currency ultimately depends on gaining public approval. The number of users is what gives cryptocurrencies their inherent worth; without public confidence, the system of virtual money as a substitute for cash payments cannot continue. This is a difficult path that will take a great deal of confidence and education to gain the support of a sceptical public, especially in light of recent events showing the volatility of cryptocurrencies. The

public's perspective on the many variables that have affected and probably will continue to affect the expansion of the cryptocurrency sector will be discussed in this part, both positively as well as negatively. With news reports and trailblazing people promoting its benefits, Bitcoin is gradually becoming more visible on the international scene.

With over 20,000 cryptocurrencies in circulation as of 2024, the cryptocurrency sector is growing quickly, making it necessary to better evaluate user awareness and adoption, especially among young adults (Varghese, 2024). The awareness of the students was very minimal even after knowing the importance of cryptocurrency in the present era (Dung et al, 2024).

The study aims to identify the perceptions of college-going students and what are the challenges they perceive regarding cryptocurrency as an investment avenue.

### **Evolution of Cryptocurrency**

One may argue that Nick Szabo's "bit gold," which he developed between 1998 and 2005 but never put into use, was the first decentralized digital money. Although Bit Gold is acknowledged as the initial precursor of Bitcoin, notable references are made to the cryptocurrency pioneer David Chaum's business "Dig Cash," Wei Dai's b-money concept, a centralised digital currency called "e-gold," and a conceptual framework. A study paper on a new form of currency – "Bitcoin" – published in 2008 by a Japanese individual by the name of Satoshi Nakamoto is credited with introducing the contemporary digital currency, which is regarded as the first decentralised digital coin in the real cryptocurrency world. The very following year, 2009, saw the public release of Bitcoin. According to its description, Bitcoin is a peer-to-peer electronic cash system that enables online payments to be made without a bank intermediary. Since 2019, the market value of cryptocurrencies has increased due to demand and their growing popularity.

## **2. Review of Literature**

### ***2.1 Awareness towards cryptocurrency***

Hasan et al (2022) The purpose of this research is to learn how individuals feel about cryptocurrencies and what they think about them. A questionnaire was employed in the study to determine the elements that influence people's propensity to accept cryptocurrencies. In the first phase of the study, the researchers conducted a pretest-posttest quantitative analysis to measure the level of awareness among users. Assumptions about the substantial influence of perceived benefits, perceived risks, perceived value, and structural provisions on behavioural intention to adopt cryptocurrency were accepted, but hypotheses about social effects, the moderating impact of self and personal innovativeness, and the mediator attitudes toward cryptocurrency were not statistically proven.

Othman et al (2022) investigated the social factors which affect cryptocurrency awareness among generation Z in Malaysia. The result showed that the social factors of trust, confidence level and social acceptance have a positively moderate and significant association with cryptocurrency in the country Malaysia.

Parnami & Mathur (2022) explored the willingness among the entrepreneurs of Jaipur city towards blockchain and cryptocurrency. The results found that the investors are unfamiliar with blockchain technology, the foundation of cryptocurrencies, even though it has become well-known. Even though most investors know cryptocurrencies, very few are willing to use them as an alternative to traditional investment methods due to security concerns, regulatory authority noncompliance, and a lack of trading expertise.

Parashar & Rasiwala (2018) examine if investing in Bitcoin provides benefits for diversification, specifically whether it has a safe haven or protecting features. Respondents were interested in implementing cryptocurrency payments soon, suggesting that once some (seen) obstacles were removed, acceptance might increase. This study looked at the elements that influence people's intentions to adopt and actual acceptance of cryptocurrency payments.

Gupta & Bagga (2017) Studied the awareness of consumers of India to find out the factors which affected the adoption of Cryptocurrency. The Research study was conducted by distributing questionnaires to 250 random consumers. But out of 250, 210 participants were not aware of cryptocurrency. Only 40 respondents were taken into consideration. It was found that the maximum number of participants had no experience with Cryptocurrency. Due to the exchange risk of Cryptocurrency, most of the respondents did not wish to use it in future. The conclusion of the study revealed that people were not aware much about Cryptocurrency in India.

## ***2.2 Students' Awareness towards Cryptocurrency***

Drakpa et al (2024) proposed to assess student's level of awareness and attitude toward the intention to adopt cryptocurrency among the students of business colleges at the Royal University of Bhutan. The Technology Acceptance Model (TAM) technique was adopted in this study. The results showed that intention to use cryptocurrencies was positively correlated with awareness. Likewise, the intention to embrace cryptocurrencies was positively impacted by perceived utility and usability. However, the results showed that the intention to use Bitcoin was negatively predicted by perceived hazards.

Nweiran et al (2023) investigated the University of Jordan students' awareness, views, adoption, and risk associated with cybersecurity regarding digital currency. The study found that the awareness level was low among the students, and the drawbacks were identified as market volatility, and limited adoption of these currencies.

Faraonel et al (2022) aimed to determine Romanian students' perception of cryptocurrency. A qualitative approach was used through the interview method. The results found that most students associated cryptocurrency with money or bitcoin. The further outcome revealed that students were not interested in investing in cryptocurrency because of money issues. Some of them had invested earlier but were not going to invest in the future again. The study concluded when most people think of cryptocurrencies, they think of Bitcoin and money. However, in addition to the favourable connotations, it also came across some unfavourable ones including fraud, money laundering, and insecurity.

Phillips E. (2021) aimed to determine the relationship between blockchain technology and cryptocurrencies as an independent variable and attitude, opinion and adoption of University of Arkansas students at the Sam M. Walton College of Business as dependent variables. The survey was conducted through computer-assisted web-interviewing (CAWI method). It was found that the students had basic knowledge about blockchain and cryptocurrency.

Doblas M. (2019) focused on determining the level of awareness and attitude of college students towards the adoption of cryptocurrency. Using primary data through the questionnaires found that students were highly aware of the existence of cryptocurrency and it was optimistically seen as a potential medium of exchange. The study concluded that a person's readiness to embrace cryptocurrencies is greatly influenced by their attitude toward them and their degree of knowledge.

### **3. Research Gap:**

The study's research gap is to discover the awareness and knowledge of college-going students of the District of Dibrugarh. The researcher has not encountered any study conducted in Dibrugarh relating to this research area.

### **4. Objectives of the Study:**

The objectives framed for the present study are-

1. To identify the perceptions of the students regarding cryptocurrency
2. To identify the challenges perceived by the students related to crypto assets.

### **5. Research Methodology**

To examine Students' perceptions and knowledge related to cryptocurrencies, a field survey is required, as it is the use of questionnaires to collect information on the subject. For the field survey, the responses of the study consisted of college students.

**Research Area:** The research area of the study is Dibrugarh, Assam. The researcher has chosen the area purposely. The colleges affiliated with Dibrugarh University are taken into consideration. The number of total colleges is 16 which are both permanent and affiliated with the university (Dibrugarh University, 2022).

**Sample size:** For this study, the researcher has chosen students from the colleges situated in this district. A sample of 112 respondents was taken as sample size. The samples are proportionately distributed to the 16 colleges of Dibrugarh district.

**Table 1: Colleges and Sample Distribution**

Name of the College	No of samples	Name of the College	No of samples	Name of the College	No of samples
D.D.R College	7	Duliajan Girls' College	7	Nandalal Borgohain City College	7
D.H.S. K College	7	Khowang College	7	Pithubar Girls' Degree College	7
D.H.S.K Commerce College	7	M.D.K.G. College	7	Tengakhat College	7
Dibru College	7	Moran Commerce College	7	Tingkhong College	7
Dr. Rohini Kanta Barua Law College	7	Naharkatiya College	7		
Duliajan College	7	Namrup College	7		

(Source: Report prepared by Dibrugarh University, 2022)

**Method of data collection:** A descriptive study was carried out, which included a review of the literature on the subject and a survey method to gather information from the students. Well-structured questionnaires are distributed through Mail and WhatsApp groups. The mail IDs and contact numbers of the students are collected from the college authorities of the respective colleges.

**Study Period:** The online survey was conducted from 20.06.2024 to 30.06.2024.

**Questions pattern:** The questions are classified into three parts- The demographic profile is the first part. The second part includes the questions of knowledge and perception towards cryptocurrency and the third part consists of the challenges or the limitations of cryptocurrency as per the students.

**Tools used:** The tools used in the study are descriptive analysis such as percentages, mean and standard deviations.

## 6. Data Analysis

In the discussion part, we categorised the first part as a demographic profile, including gender, level of studies, and types of studies of the respondents.

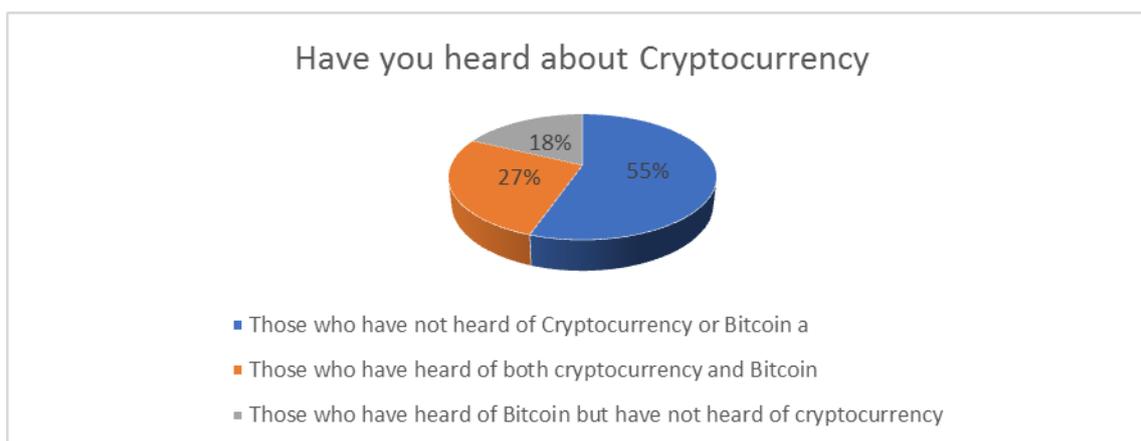
**Table 2: Demographic Profile**

Demographic	Category	Count	Percentage
Gender	Male	70	60.86%
	Female	42	37.50%
Level of Studies	UG	90	80.35%
	PG	22	19.64%
Types of studies	Humanities	67	58.26%
	Science	45	40.17%

(Source: Self-compiled)

The above table shows that in gender, 70 respondents are male and 42 respondents are female. 90 respondents are undergraduate and 22 are post-graduate, since in the colleges of Dibrugarh, PG courses are also available. Under the types of studies, 67 are from humanities (humanities include arts and commerce stream students) and 45 are from the science stream.

**Fig 1: Have you heard about cryptocurrency?**



(Source: Self - Compiled)

From Fig 1, we have come to understand that only 50 respondents have heard of both cryptocurrency and bitcoin; and have heard of Bitcoin but have not heard of cryptocurrency. And out of 50 respondents, 30 respondents (27%) have heard of both cryptocurrency and bitcoin and 20 respondents (18%) have heard of Bitcoin but have not heard of cryptocurrency. And the remaining 62 respondents (55%) have not heard about the term cryptocurrency or bitcoin.

**Fig 2: Have you ever traded any cryptocurrency/Bitcoin?**

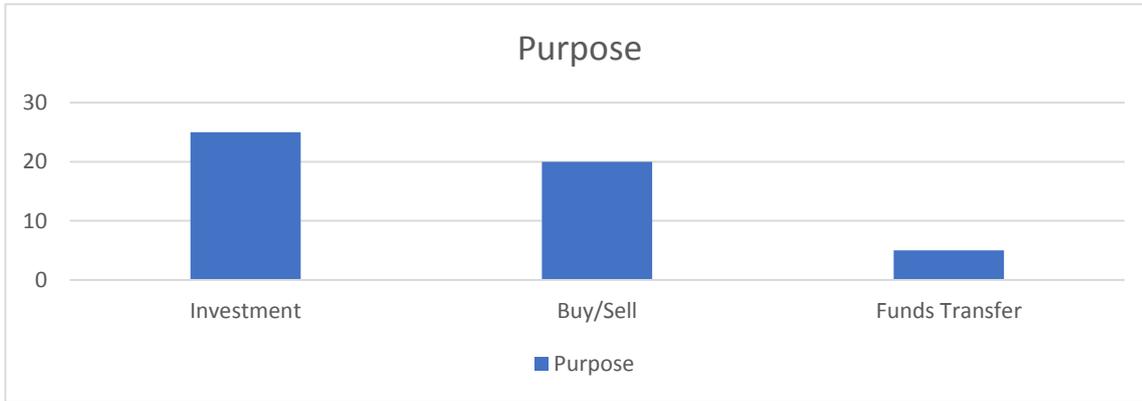


(Source: Self - Compiled)

From the above Fig 2, it found that 55% of total respondents (i.e., 62) do not trade cryptocurrency/ Bitcoin while; 45% (50 respondents) are engaged in trading in

cryptocurrency/Bitcoin. We came to know that most of the college-going students have never traded in cryptocurrency/ bitcoin.

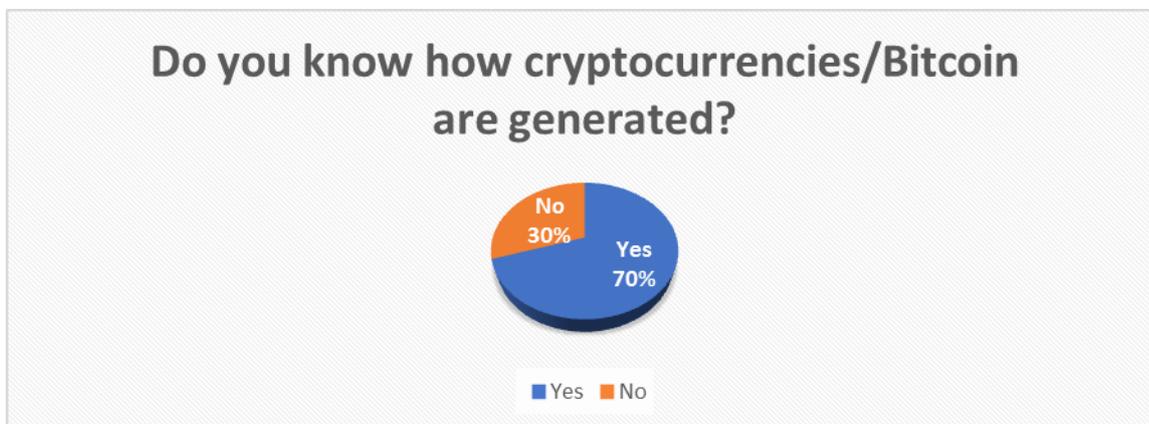
**Fig 3: Do you know for what purposes cryptocurrencies/Bitcoin are used?**



(Source: Self - Compiled)

In Fig 3, a question was raised about the purposes of using cryptocurrency/ Bitcoin. Most of the respondents' responded that cryptocurrency was an investment avenue, after that, it was perceived as a buy/sell option or trading avenue to earn a profit daily. The funds transfer option was the least selected purpose of using cryptocurrency.

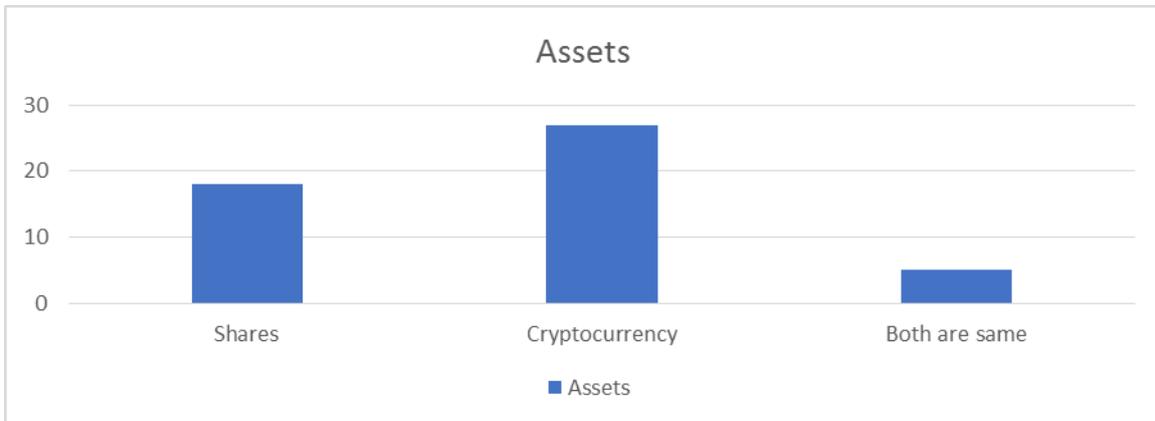
**Fig 4: Do you know how cryptocurrencies/Bitcoin is generated?**



(Source: Self - Compiled)

Fig 4, found that 70% of respondents (35) know how cryptocurrencies/Bitcoin are generated while 30% of respondents (15) do not know who or how cryptocurrencies are generated. The students are well aware of where bitcoin or cryptocurrency generated.

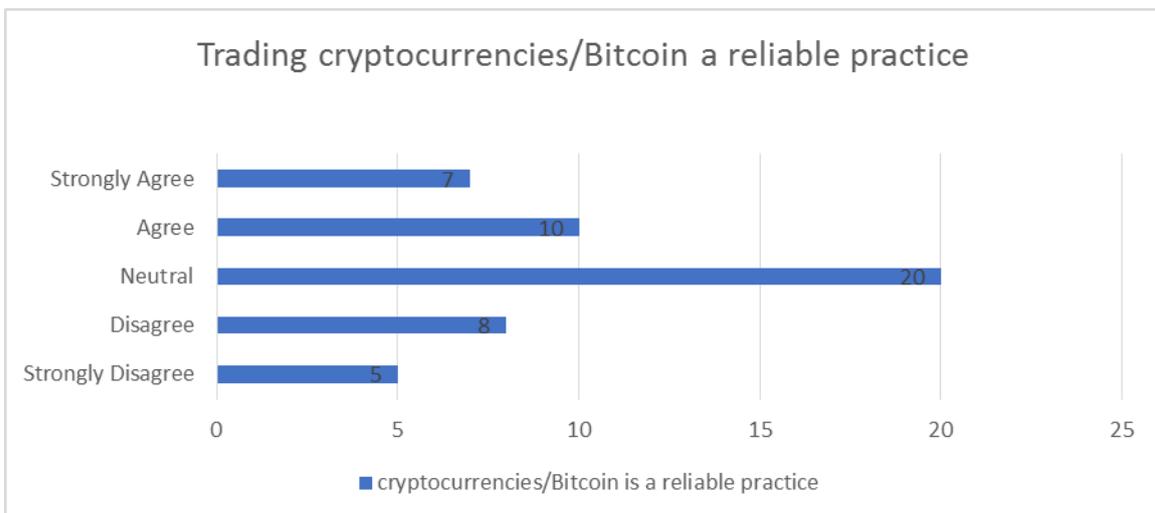
**Fig 5: Riskier asset as per your opinion**



(Source: Self - Compiled)

In the above Fig 5; it was found that 27 respondents chose cryptocurrency as a riskier asset compared to shares or stocks. 18 respondents selected shares as a riskier asset and 5 students responded both are the same.

**Fig 6: Trading cryptocurrencies/Bitcoin is a reliable practice**



(Source: Self - Compiled)

Fig 6, 20 respondents have answered neutral in case of trading cryptocurrencies is a reliable practice. 10 have responded as agree, 8 as disagree, 7 as strongly agree and 5 as strongly disagree. Most of the respondents believe neutral for reliable practice while trading in cryptocurrency or Bitcoin as a reliable practice.

**Fig 7: Why are you satisfied with trading cryptocurrencies/Bitcoin?**



(Source: Self - Compiled)

Fig-7, Shows that most of the respondents (20) said because of easy trading they were satisfied with trading in cryptocurrency/bitcoin. 15 responded in profits in line with expectations, 7 selected reliabilities, 5 selected the fast transaction option and 3 choose risk-free reasons for their satisfaction with trading in cryptocurrency. It found that most of the respondents were satisfied due to easy trading reasons for cryptocurrency.

**Challenges Related to Cryptocurrency**

Not only Indian people are facing several challenges and negative perspectives towards cryptocurrency or Bitcoin, but people around worldwide are too intimidated to adopt cryptocurrency as an investment avenue. Some challenges and arguments were considered as statements for the respondents and the researcher examined which were the reasons they perceive not to trade in cryptocurrency or Bitcoin.

**Table 3: Knowledge about Challenges related to cryptocurrency**

	Min.	Max.	Mean	Std. Deviation	Level
<b>Illegal activity</b>	1.0	5.0	3.140	1.4709	Low
<b>Extreme Volatility</b>	1.0	5.0	3.840	1.2182	Moderate
<b>High-risk</b>	1.0	5.0	3.780	1.0746	Moderate
<b>Exists only in virtual mode</b>	3.0	5.0	4.380	0.5303	Moderate
<b>No intervention from the Financial Authority</b>	2.0	5.0	3.500	1.1650	Moderate
<b>Virtual Hacker</b>	3.0	5.0	4.400	0.6701	Moderate

(Source: Self - Compiled)

The above Table 3, showed the knowledge or understanding of the challenges related to cryptocurrency. The mean score was highest in virtual Hacker (4.4) and exists only in virtual mode (4.38) options. Extreme volatility (3.84) and high-risk (3.78) options are the next limitations which mean scores were found to be the second highest challenges related to cryptocurrency. No intervention from the Financial Authority (3.5) and Illegal activity (3.14) were found as the least mean score limitations perceived by the students regarding cryptocurrency.

## 7. Discussion

From the analysis, the two objectives of the current study were achieved, the objectives: a) To identify the perceptions of the students regarding cryptocurrency and b) To identify the challenges perceived by the students related to crypto assets. The college-going students of the Dibrugarh district had knowledge, awareness and perceived understanding relating to cryptocurrency or bitcoin. The students perceived the limitations or the challenges that could create barriers while investing or trading in crypto assets. Most of the respondents have a good understanding of crypto assets but are afraid to invest or trade their finances due to virtual hacking, the high risk involved since it fluctuates frequently and the absence of a regulator or concerned financial authority. In addition to this, it is not fully supported by the Government of India (GOI), hence most college students perceive crypto assets as risky investment options. It is also said that "High risk, High profit", investing in this avenue can generate high profit, which could be the thrust for the college students, as youth are more confident to take risk.

## 8. Conclusion

As per the latest UN report, India has the world's largest youth population from the age of 10 to 25 years. The youth are the well-versed generation when it comes to digital buying and digital usage. Generally, the younger generation follows trendy technology very effortlessly, but with limited knowledge about the limitations and benefits. The students follow the trend through the help of social media platforms without considering the limitations and benefits. Hence; the researchers intend to focus on the youth generation and their perception towards cryptocurrency in this study.

Since this is the new era of digitisation where investment will only take place in virtual mode, higher educational institutions can take the initiative to add this concept with its benefits and limitations to the syllabi to raise awareness among the students about crypto assets or digital assets.

## 9. Limitation and Future Scope of the Study

The main limitation of the study is gathering the respondents through online platforms like mail and WhatsApp. The response rate of those platforms is very minimal.

The researcher and academicians can explore their research with a wider aspect by taking the state as a research area. Additionally, gender-wise comparison, generation-wise comparison and the comparison among the different educational qualifications can be carried forward in their research.

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# Food and Nutrition Security: Preparedness Before Natural Disaster with Planning & Strategy Development

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## Abstract

*The natural disasters are nowadays a major threatening factor worldwide for the destruction of human life as well as Mother Nature. Flash flood, flood mudslide, earthquake, forest fire, landslide, avalanche, tsunami, cyclone, hurricane, storm, draught, attack of pests, etc. are all uncertain phenomena causing havoc to human life. With the systematic development of science and technology the risk management to combat disaster related incidents has also become a major concern both for researchers and governments of all countries. The scientists and the planners are toiling day and night to save the human civilization from nature's rage. The incidence of natural calamities is mainly affecting the human being in terms of their capacities to maintain themselves. The stock and availability of food which specially affects the children, age old person and woman of the population is compelling the authority and planners to re-think in a new way. The destruction of infrastructure related to livelihood and food systems are the consequences of natural disasters. Our country as a whole is trying to develop the management strategy before any natural disaster so that minimisation of risk and loss of life and damage to infrastructure keeps the government in a comfortable way. That is why management and maintenance of food and nutrition security during disasters should be the most important response to save the human being affected by the disasters. This paper tries to measure the level and status of action and how it is taken up by the local Government and authority as an early and quick response to maintain the food and nutrition security in an affected area for mitigation of challenges faced by the population.*

**Keywords:** *Natural Disaster, food and nutrition security, food availability, early response, Mitigation.*

## 1. Introduction:

News of disasters striking in various geographical locations with increasing frequency, intensity and scales are dominating the media across the globe. Frequent occurrence of disaster involves jeopardizing lives and the subsequent process of recovery as well as reconstruction to restore life requires expenditure in billions of dollars.

Natural and man-made, whatever the type of disaster, immediate management of the eventuality and its impact becomes the challenge and also the priority of the Government. Responses should be in all fronts to support the affected community with a multi

stakeholder approach in the disaster affected area as the incidence of natural calamities is mainly affecting the human being in terms of their capacities to maintain themselves. Further, the stock and availability of food which specially affects the children, women and age-old person of the population is compelling the authority and planners to think through the risk lens covering future risks and subsequent mitigation measures. Threat of food insecurity as a consequence of natural disaster may prolong and may be less prioritised affecting the people's health and nutrition.

### **Concept of Food Security:**

Food security is synonymous with the absence of hunger or other crises, the provisions of calories in predetermined numbers in the household level. According to the committee on World Food Security of United Nations Food and Agriculture Organization (FAO), the food security is defined as food security means that food is available at all times that all persons have means of access to it that it is nutritionally adequate in terms of quality, quantity and variety and that it is acceptable within the given culture "It is a situation in which all households have both physical and economic access to adequate food for all members and where households are not at risk of losing such access (Dutta, 2016).

The term food security, in true sense, needs various measures in the disaster affected area as a response for providing food support in the form of proper food items, option of food assistance (Aniehvand, 2015) keeping in view of nutritional values for maintenance of health of the affected people.

### **2. Review of Literature:**

In this study previous works in the area have been reviewed on immediate response, quick mitigation, maintenance of food and nutrition security, food aid, world scenario of post disaster period management, early warning system etc.

Ainchavand et al., (2019) have written a paper on Natural disaster and its challenges on food security response in Iran, which have mentioned the consequences of natural disasters in the form of damage to food systems and destruction of livelihood-related infrastructure threatening the food security of the people of Iran. Those challenges found out by them were of three types- underlying challenges, challenging process and resources management and challenges of organizing and coordinating. The last challenge was the key factor for achieving food security. Climate change has also aggravated the food security system in that country as have been mentioned in their writing. The study investigated the experiences and views of experts in this field which mainly interview-based qualitative study. Content analysis was the research method.

The World Bank (May 2019): Report on Cyclone Fani, Odisha, where damage loss and needs assessment was done by Government of Odisha, the Odisha State Disaster Management Authority (OSDMA), the United Nation's agencies, the World Bank and the Asian Development Bank to support the recovery process. In that report, there was the information regarding the preparedness to Response and Immediate Relief Operations. Apart from the strengthening of support of psychosocial patterns and disease surveillance, a large amount

was done for recovery of nutrition status. Augmenting repair, retrofitting and building of cyclone residents (AWCs) and supply of essential food items through mobile vans along with community kitchens for vulnerable groups were the major steps taken by the Odessa Government. Pre- Cyclone period was taken care of by the State Government to ensure stock of food and essential items .Control rooms were set up for proper distribution of food at district as well as block level. To assure food availability to the community during the cyclone supply of food was pre-positioned in Child Care Investments (CCIs), shelter homes, cyclone shutters, and in schools.

Food and Agriculture Organization of the United Nations (FAO) in 2021 has reported about impact of disasters and crises on agriculture and food, security, where FAO has mentioned that at no, other point of history food system was damaged by disasters as of now, like COVID-19 pandemic, which supply across the world; According to report disaster is readily rising. Drought, pests, floods, storms, crop and livestock pests, decrease and infestation, wildfires have a varying impact on various commodities. In LDCs and LMICs; 2008-2018, crop and livestock production loss is considered to be the equivalent dietary loss of annual calorie intake of around 7 million people. Wildfires trigger a hotter and drier world and are also responsible for less production of agriculture commodities. The FAO report is suggesting improved data and monitoring as prerequisites for the better understanding of the substantial disaster related damage and loss.

Muhammad Ibrahim Shah at (2022), have written an article on the nexus between natural disasters and food insecurity, where they have tried to identify the shocks of natural disasters on food security of households of rural areas of Bangladesh. They have utilised the Bangladesh Integrated Household Survey (BHIS) to have an idea of determinants of food security. They have used the Food Insecurity Experience Scale (FIES) for the measurement of food security of households. The result of the study made by Shah and others has shown that the exposures of the households to the shocks of natural disasters are more prone to food insecurity in comparison to those who are not confronted with the shocks. Secondly, international remittances helped the households to be more secure with respect to food. Thirdly, marital status and education of the head of the household, his/her indebtedness, size of his/her family expenditures and land ownership are also affecting food security status. Investment on infrastructure and food storage was ignored in this study. And technical knowledge and quality of education are required to improve and strengthen the food security scenario in Bangladesh as their suggestion.

All these review of available literature into forth the fact that during disaster, the problem of food supply is tried resolve as an early response to mitigate the aftershock effect of disaster whether the food security is maintained in the affected place is always an area of concern with the insights of immediate response from the authority for quick mitigation.

### **3. Objectives of the Study:**

Food security maintenance during the disaster is the primary task of the authority or administration of the area. Food availability, food accessibility and utilization of food all

three pillars of food security determine the security of the population of the area when the disasters strike in a very uncertain way.

The National Disaster Management at the national level and State Disaster Management at the state or regional level is responsible for maintaining all logistics in the place of disaster keeping in view of the working of the authority during the crisis in post disaster period. The following objectives have been set up for this qualitative study.

- i) To explore the impact of disasters on the food system
- ii) To assess Government initiatives towards food and nutrition security in the post disaster scenario
- iii) Listing of multi-stakeholder preparedness initiatives for food security and maintenance of stock in the vulnerable areas
- iv) To assess the effectiveness of existing response mechanism towards food availability in disaster events
- v) To explore the effectiveness of prevailing mitigation measures towards food security in the short, medium and longer time scales.

#### **4. Methodology:**

This qualitative study has used secondary data for the insight into the maintenance of food security in the post-disaster period. Performance of the risk mitigation activities and the food security maintenance by the government agencies are to be instigated for the challenges experienced by the stakeholders. The present study defines the food security framework for better understanding of the situation during a disaster.

#### **5. Insights:**

Food Security Response to Natural Disasters: Disaster risk Reduction is given importance in Sustainable Development Goal (SDGs) which is applied universally to all UN member states and is a global campaign from 2000-2015 having 17 goals (Woodbridge)

Goal 1: End Poverty in all its forms everywhere,

Target 1.5, Building the residence of the poor, further strengthened as a core development strategy for ending extreme poverty.

Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

Target 2:4 of this goal takes care of the immediate need to advance actions in mainstreaming disaster risk reduction and climate adaptation into agriculture sector planning and investments in order to promote resident livelihoods, food production and ecosystems. (Kishore, 2017).

'Sendai Framework' a plan for disaster risk reduction was adopted in the 3<sup>rd</sup> UN World Conference by the 188 UN members on March 18, 2015 in Sendai City in Japan. Seven numbers of targets were planned in four major areas of priority to fulfill within 2030 (Rijju, Kiran, 2017, P.7). Those four areas envisaged - Understanding Risk, Strengthening Risk

Governance, and Investing in disaster resilience and Improving Capacities for disaster response as well as for building back better after disaster. So at the international level also the risk reduction and mitigation was considered.

In 2016, the Asian Ministerial Conference on Disaster Risk Reduction was held in New Delhi to provide a platform for member countries for sharing good things in the areas of Reduction of Disaster Risk. There in the conference two decisions in the form of Document viz., 'New Delhi Declaration' and 'Asian Regional Plan for Implementation of the Sendai Framework' was taken (Rijiju, 2017).

Disaster Preparedness: This is an important strategy when there is an Early Warning System available with the advancement of technology. Diversification of the food basket of the household is looked after and is seen as a preparedness of the disaster with the suitable distribution mechanism. For resilient infrastructure for food distribution, judicious approach in delivery of food and both from regional, national and international organization is reviewed for smooth functioning among the affected. Care is taken in case of migrant workers if any in the area.

In our country, the State Disaster Response Force (SDRF) and National Disaster Response Force (NDRF) are there for maintaining the crisis situation with regular exercise of the mechanisms in India. Seasonal Climate and Weather Forecasting methods are strictly followed by the government authorities. Price of essential food commodities is to be in control and is monitored continuously.

Safe Drinking Water and Sanitation provision is kept in preparation for maintaining the third pillar of food security. Water borne disease not being spread in the area is also a major task of the authority which affects the anthropogenic aspect of the affected area and vulnerable group.

#### **COVID 19:**

During the pandemic of COVID 19, the whole world has experienced that supply of food has been affected right from production to the consumer's plate. Every nation had their own mechanism to meet the supply of food to their citizens. The Government of India has done a commendable job in this regard and tried to supply the food to its citizens as well as its migrant workers with free rations, vegetables for a long period of time.

#### **i) Food Shortage:**

Food system is actually affected in the form of food shortage during disasters in the area. During disaster the households become food insecure (Shah, 2022). During Odisha's Phani Cyclone, services at the AWCs such as Village Health Nutrition and Sanitation Day, growth monitoring, SAM (Severe Acute Malnutrition) identification, micronutrient supplementation services were majorly disrupted during the period especially in centers running in rented premises. Food security continues to be threatened after the disaster struck the area.

**ii) Recovery:**

In order to restore, resume and improve the nutrition and food security services, the short term, medium term and long term strategies are generally adopted.

**Short-Term (for 12 months)** strategy in the form of repair and retrofitting is followed by logistics like supply of THR (Take Home Ration), additional supply of SNP/Milk is exercised.

**Medium-Term (12- 24 months)** strategy in the form of service of mobile vans to ensure nutrition and food security by extending coverage, community kitchen garden for vulnerable groups together with training and capacity building in the affected area.

**Long-Term (24-60 months)** strategy in the form of cyclone/flood/storm resilient building of AWC damage and maintenance is taken care off.

iii) **Database Management System** which provides real time monitoring of the most vulnerable population with respect to the food and nutrition security for early action is considered for government investment.

iv) The possibilities of **ready to eat nutrition-dense foods** for relief as a specific requirement of younger children and other vulnerable groups may be an important step which is followed as a service by the local or regional authorities. In many places of disaster affected population this is actually followed in reality.

**6. Conclusion**

The Disaster Management responsibility primarily lies with the local government .The Government at the National level plays a supportive and supplementary role. Usually disaster is an event imparting damage and loss of human, infrastructure, environment which is beyond the coping capacity of the affected community. People should understand the scale of risk; pay heed to the warning announced by the authority and should know how to react during disaster.

On the part of the Government it should be kept in mind that disaster management plans are easy to handle and are in order, tested and well-rehearsed. The early warning system should reach to the community, be well informed, should be able to behave safely to protect themselves, well directed escape routes and they should learn to avoid damage and property loss.

Government of Assam in its Roadmap 2030 of disaster risk reduction have specifically emphasized in Resilient Social Sector Services and Infrastructure in the form of Monitoring and evaluation of One Nation One Ration Card program, App based GPS tracking system of FCI trucks, mapping of FPS and recording of food stocks from godowns and delivery at FPS, Digitization of Supply Chain Management (including movement, storage, distribution of food grains) etc.

Further, a digital monitoring system for food distribution, records of stocks, trained manpower, operational Infrastructure facilities, etc will facilitate in ensuring a robust

mechanism for food security in any eventuality. Finally, leveraging technical and institutional capacities of various stakeholders Government, Civil Society Organisations, Academic Institutions, Private Sector, UN Agencies etc will be the turning stone for disaster risk reduction towards food security in future.

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# Predicting Financial Distress in India's Telecom Sector: An Analytical Approach with Altman Z Score and Springate Models

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## Abstract

*The Indian telecom sector has faced significant financial challenges, prompting the need for robust tools to evaluate and predict financial distress. This study focuses on four major telecom companies: Reliance Jio, Bharti Airtel, BSNL, and Vodafone Idea, analyzing their financial performance over a five-year period (2017-18 to 2021-22) using the Altman Z and Springate models. The results reveal that all the companies exhibited significant signs of financial distress. The findings highlight the effectiveness of these models in predicting financial distress and underscore their importance as tools for stakeholders to make informed decisions.*

**Keywords:** Financial Distress, Altman Z Model, Springate Model, Telecom Sector

## 1. Introduction

The telecom sector in India has undergone a transformative journey over the past few decades, emerging as a key contributor to the nation's economic growth and digital connectivity. This sector has been instrumental in bridging communication gaps and fostering innovation. However, the intense competition, heavy regulatory burdens, and the need for constant technological upgrades have posed significant financial challenges to telecom providers. Despite its growth potential, the industry has witnessed several instances of financial instability, with companies struggling to maintain sustainable profitability and avoid financial distress.

Financial distress, if left unchecked, can have serious consequences, including bankruptcy, loss of investor confidence, and disruptions in essential services. To address these risks, it is imperative to adopt predictive models that assess the financial health of telecom firms and offer early warning signals of potential distress. The Altman Z Score and Springate Score models are two widely used financial tools that combine multiple financial ratios to predict the likelihood of financial distress effectively. These models provide a comprehensive understanding of a company's financial performance, leveraging key indicators such as liquidity, leverage, profitability, and efficiency.

This study focuses on applying the Altman Z Score and Springate Score models to analyze the financial health of four major telecom companies in India: Bharat Sanchar Nigam Limited

(BSNL), Reliance Jio, Bharti Airtel, and Vodafone Idea (VI). Covering a five-year period from 2017-18 to 2021-22, the research aims to evaluate the financial stability of these firms, identify patterns of distress, and provide actionable insights for stakeholders. By integrating these models, the study contributes to the growing body of literature on financial health assessment in dynamic and competitive industries.

## 2. Review of Literature

Bankruptcy occurs when a company can no longer meet its obligations. This situation does not arise suddenly but is often preceded by warning signs that can be identified through careful analysis of financial statements (Sondakh et al., 2014). Platt and Platt (2002) define financial distress as the phase of declining financial conditions that precedes bankruptcy or liquidation. It is characterized by a company's inability to meet its obligations or the unavailability of sufficient funds to pay due liabilities. Brigham and Ehrhardt (2011) further elaborate that financial distress starts when a firm can no longer fulfill its financial commitments. This situation raises five critical issues, emphasizing the challenges and risks associated with deteriorating financial stability in organizations.

The Altman Model, introduced by Edward Altman in 1968, utilizes Multiple Discriminant Analysis (MDA), a statistical technique that identifies key financial ratios influencing the likelihood of certain financial outcomes. This approach simplifies the evaluation process by incorporating these ratios into a predictive model, allowing for straightforward conclusions regarding financial events. Initially designed for public manufacturing companies, the Altman model has evolved over time to accommodate diverse contexts, including private companies, non-manufacturing firms, and corporate bonds. Studies have demonstrated the model's reliability; for instance, Atika Anggraeni Syamsul Hadi (2008) found it to be the most effective predictor among models like Springate and Zmijewski for identifying delisted companies. Similarly, Mila Fatmawati (2012) used the Altman, Springate, and Zmijewski models to predict delistings in manufacturing firms, with the Altman model emerging as a competitive tool in assessing financial distress. These findings confirm that Altman's Z-Score Model can be used to predict financial distress of corporate entities.

The Springate Model, introduced by Gordon L.V. Springate in 1978, is an evolution of the Altman Model, utilizing Multiple Discriminant Analysis (MDA). Initially, Springate examined 19 commonly used financial ratios but ultimately selected four key ratios that effectively differentiate between financially healthy companies and those at risk of insolvency. The model demonstrated an impressive accuracy rate of 92.5%, with its development based on a sample of 40 companies. The Springate Model has been applied in various studies to evaluate financial health and predict potential bankruptcy. For example, Adriana (2011) used the model to analyze bankruptcy prediction for food and beverage companies listed on the Indonesia Stock Exchange between 2006 and 2010. The study highlighted the model's utility not only as a predictor of future insolvency but also as an early warning system for financial distress. The model is particularly effective in providing stakeholders with a tool to assess company performance and identify potential financial

risks. Its relevance in financial distress prediction makes it a valuable analytical tool in corporate financial management.

### 3. Objectives of the Study

1. To measure the financial health of telecom companies in India based on key financial ratios and metrics.
2. To predict the likelihood of financial distress in India's telecom sector using Altman Z and Springate models.

### 4. Research Methodology

#### 4.1 Study Population and Sample Selection:

The study population consists of all the telecom providers currently active in India. This includes major players such as BSNL (Bharat Sanchar Nigam Limited), Jio (Reliance Jio Infocomm Limited), Airtel (Bharti Airtel Limited), and VI (Vodafone Idea Limited), which are the primary competitors in the Indian telecom market. The study sample is drawn from these four telecom companies, selected based on their significant market share and availability of financial data for analysis.

#### 4.2 Data Source:

This study evaluates the financial health of four prominent telecom companies in India, namely BSNL, Jio, Airtel, and Vodafone Idea (VI), using Altman's Z-Score and Springate Score Models. The required secondary data was obtained from publicly available financial statements, covering the five-year period from 2017-18 to 2021-22.

#### 4.3 Tools of Analysis:

To assess the financial distress and overall financial health of the telecom companies, this study employs two widely recognized models: Altman's Z-Score and the Springate Score. Both models use a set of financial ratios derived from the companies' balance sheets and income statements to assess their probability of bankruptcy or financial distress.

##### a. Springate Score Model:

The Springate Score model, developed by Professor Springate, is another widely recognized tool for bankruptcy prediction. It uses four financial ratios to calculate a score indicating financial distress:

$$S=1.03A+3.07B+0.66C+0.4D$$

Where,

A = Working Capital / Total Assets (WC/TA)

B = Earnings before Interest and Taxes / Total Assets (EBIT/TA)

C = Profit before Taxes / Current Liabilities (PBT/CL)

D = Revenue / Total Assets (REVENUE/TA)

**b. Altman Z-Score Model (1993):**

Altman’s Z-Score is one of the most widely used models for predicting corporate bankruptcy. It combines five financial ratios, which are weighted by specific coefficients, to generate a single score that can indicate the likelihood of financial distress. The model used in this study is the modified version (1993) of Altman’s Z-Score, which includes the following variables:

$$Z=1.2A+1.4B+3.3C+0.6D+1.0E$$

Where,

A = Working Capital / Total Assets (WC/TA)

B = Retained Earnings / Total Assets (RE/TA)

C = Earnings before Interest and Taxes / Total Assets (EBIT/TA)

D = Earnings before Interest and Taxes / Total Liabilities (ESC/TL)

E = Sales / Total Assets (SALES/TA)

For each of the four telecom companies, financial ratios were calculated using the formulae for the Altman Z-Score and Springate Score. The ratios were then weighted according to the coefficients specified in both models to determine the overall scores. A lower score typically indicates a higher probability of financial distress, while a higher score suggests a lower risk of bankruptcy.

The results of the Z-Score and Springate Score for each company over the five-year period were analyzed and compared to assess the financial stability and distress levels of BSNL, Jio, Airtel, and VI. By examining the trends in the scores, this study aims to provide insights into the financial health and risk of bankruptcy of these telecom companies.

**5. Data Analysis & Interpretation**

**Table 1: Springate S Scores for BSNL**

Springate Score Model=1.03A+3.07B+0.66C+0.4D						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.0489	-0.13144	-0.13243	-0.10585	-0.16871	-0.11747
B=EBIT/TA	-0.06546	-0.10424	-0.09205	-0.03669	-0.03452	-0.06659
C=PBT/CL	-0.37675	-0.41714	-0.27534	-0.17085	-0.14104	-0.27622
D=REVENUE/TA	0.188792	0.142609	0.128828	0.139976	0.150712	0.150183
<b>Springate Score</b>	<b>-0.42446</b>	<b>-0.67368</b>	<b>-0.54918</b>	<b>-0.27843</b>	<b>-0.31255</b>	<b>-0.44766</b>

Source: Compiled by the researcher

**Table 2: Altman Z Scores for BSNL**

Altman Z Score=1.2A+1.4B+3.3C+0.6D+1.0E						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.0489	-0.13144	-0.13243	-0.10585	-0.16871	-0.11747
B=RE/TA	0.290482	0.174465	0.054816	0.004454	-0.05063	0.094717
C=EBIT/TA	-0.06546	-0.10424	-0.09205	-0.03669	-0.03452	-0.06659
D=ESC/TL	0.037652	0.036906	0.03407	0.037638	0.039547	0.037163
E=SALES/TA	0.170697	0.131097	0.121875	0.131372	0.132968	0.137602
<b>Altman Z Score</b>	<b>0.325269</b>	<b>-0.10424</b>	<b>-0.24361</b>	<b>-0.0879</b>	<b>-0.23056</b>	<b>-0.06821</b>

Source: Compiled by the researcher

Table 1 and 2 represents the financial distress analysis of BSNL using the Springate and Altman Z-Score models. The tables reveal significant concerns about its financial health. The Springate Score averaged -0.44766, far below the distress threshold of 0.862, indicating persistent financial challenges. Negative working capital ratios (WC/TA) highlight liquidity issues, and EBIT/TA values show continued operational losses. Similarly, Altman Z-Score averaged -0.06821, below the threshold of 1.81, suggesting severe distress and a risk of insolvency.

Key factors include declining retained earnings (RE/TA) and revenue generation (REVENUE/TA), reflecting poor profitability and asset utilization. BSNL’s consistent negative scores for PBT/CL and EBIT/TA further underline its inability to generate sufficient earnings to cover costs. Despite stable equity share capital and moderate sales-to-total assets ratios, these are insufficient to offset persistent losses. Overall, BSNL’s financial indicators suggest the need for significant restructuring and strategic interventions to ensure sustainability.

**Table 3: Springate S Scores for Reliance JIO**

Springate Score Model=1.03A+3.07B+0.66C+0.4D						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.26372	-0.23996	-0.04128	-0.03122	-0.05186	-0.12561
B=EBIT/TA	0.012532	0.044481	0.058385	0.07968	0.076116	0.054239
C=PBT/CL	0.013073	0.075055	0.195081	0.531907	0.436565	0.250336
D=REVENUE/TA	0.080206	0.19916	0.22508	0.281644	0.242407	0.205699
<b>Springate Score</b>	<b>-0.19245</b>	<b>0.018598</b>	<b>0.355512</b>	<b>0.676171</b>	<b>0.565357</b>	<b>0.284638</b>

Source: Compiled by the researcher

**Table 4: Altman Z Scores for Reliance JIO**

Altman Z Score=1.2A+1.4B+3.3C+0.6D+1.0E						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.26372	-0.23996	-0.04128	-0.03122	-0.05186	-0.12561
B=RE/TA	-0.02842	-0.02413	0.003438	0.051374	0.085293	0.017512
C=EBIT/TA	0.012532	0.044481	0.058385	0.07968	0.076116	0.054239
D=ESC/TL	0.177281	0.229441	0.186177	0.179936	0.141292	0.182825
E=SALES/TA	0.08019	0.199109	0.22472	0.279453	0.241757	0.205046
<b>Altman Z Score</b>	<b>-0.12833</b>	<b>0.161831</b>	<b>0.484378</b>	<b>0.68481</b>	<b>0.634896</b>	<b>0.367517</b>

Source: Compiled by the researcher

Table 3 and 4 displays the financial distress analysis of Reliance Jio using the Springate and Altman Z-Score models which highlight significant challenges, with both scores consistently below the thresholds for financial stability and safety. The Springate Score averaged 0.284638 (below 0.862), and the Altman Z-Score averaged 0.367517 (below 1.81), indicating persistent distress. Negative working capital (WC/TA) ratios suggest liquidity issues, while improving profitability metrics like EBIT/TA and PBT/CL reflect operational efficiency. Revenue growth trends indicate better asset utilization, but financial stability requires further improvement in liquidity and sustained profitability to overcome distress and achieve long-term stability.

Despite the persistent financial distress reflected in the scores, the improvements in profitability and revenue are promising signs of recovery. Reliance Jio appears to be on a trajectory of financial stabilization, and if these positive trends continue, the company may overcome its distress and transition to a stable financial position in the future. However, addressing liquidity concerns and ensuring sustained profitability will be critical for achieving long-term financial health.

**Table 5: Springate S Scores for Airtel**

Springate Score Model=1.03A+3.07B+0.66C+0.4D						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.17855	-0.21857	-0.15202	-0.16439	-0.17049	-0.1768
B=EBIT/TA	0.050253	0.033727	0.029734	0.048002	0.068684	0.04608
C=PBT/CL	0.041756	-0.01861	-0.35083	-0.12978	0.109476	-0.0696
D=REVENUE/TA	0.330781	0.294594	0.238961	0.292631	0.321956	0.295785
<b>Springate Score</b>	<b>0.130244</b>	<b>-0.01603</b>	<b>-0.20126</b>	<b>0.009444</b>	<b>0.236297</b>	<b>0.031739</b>

Source: Compiled by the researcher

**Table 6: Altman Z Scores for Airtel**

Altman Z Score=1.2A+1.4B+3.3C+0.6D+1.0E						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.17855	-0.21857	-0.15202	-0.16439	-0.17049	-0.1768
B=RE/TA	0.33746	0.288985	0.114712	0.050504	0.037995	0.165931
C=EBIT/TA	0.050253	0.033727	0.029734	0.048002	0.068684	0.04608
D=ESC/TL	0.007976	0.007263	0.007561	0.007936	0.007686	0.007684
E=SALES/TA	0.329788	0.293535	0.234705	0.290774	0.320487	0.293858
<b>Altman Z Score</b>	<b>0.758595</b>	<b>0.551491</b>	<b>0.315539</b>	<b>0.327382</b>	<b>0.400367</b>	<b>0.470675</b>

Source: Compiled by the researcher

Table 3 and Table 4 present the financial distress analysis of Airtel using the Springate and Altman Z-Score models, both of which indicate significant financial vulnerability. The Springate Score averaged 0.031739, which is well below the distress threshold of 0.862, and the Altman Z-Score averaged 0.470675, also falling below the critical threshold of 1.81, signaling persistent financial distress. The negative working capital (WC/TA) ratios highlight liquidity issues, while the improving EBIT/TA ratio suggests better operational

efficiency. Although revenue growth (Sales/TA) shows positive trends, reflecting improved asset utilization, the overall financial position remains precarious, requiring further attention to liquidity management and consistent profitability.

Despite the ongoing financial distress reflected by both models, Airtel's improvements in profitability and revenue are encouraging. These positive trends suggest that the company may be on a path toward financial stabilization. However, addressing liquidity challenges and ensuring continued profitability are essential steps to overcome distress and secure long-term financial health.

**Table 7: Springate S Scores for VI**

Springate Score Model=1.03A+3.07B+0.66C+0.4D						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.01471	-0.15652	-0.34855	-0.25736	-0.22831	-0.20109
B=EBIT/TA	-0.01711	-0.03793	-0.1157	-0.22806	-0.03738	-0.08724
C=PBT/CL	-0.61119	-0.33564	-0.6452	-0.66644	-0.46184	-0.54406
D=REVENUE/TA	0.290452	0.164666	0.202701	0.207029	0.199171	0.212804
<b>Springate Score</b>	<b>-0.35487</b>	<b>-0.43331</b>	<b>-1.05897</b>	<b>-1.32226</b>	<b>-0.57507</b>	<b>-0.7489</b>

Source: Compiled by the researcher

**Table 8: Altman Z Scores for VI**

Altman Z Score=1.2A+1.4B+3.3C+0.6D+1.0E						AVERAGE
PARTICULARS	2017-18	2018-19	2019-20	2020-21	2021-22	
A=WC/TA	-0.01471	-0.15652	-0.34855	-0.25736	-0.22831	-0.20109
B=RE/TA	0.030736	-0.10197	-0.44939	-0.71827	-0.89863	-0.42751
C=EBIT/TA	-0.01711	-0.03793	-0.1157	-0.22806	-0.03738	-0.08724
D=ESC/TL	0.044222	0.038031	0.126633	0.141219	0.165536	0.103128
E=SALES/TA	0.286871	0.161483	0.198121	0.206173	0.198504	0.21023
<b>Altman Z Score</b>	<b>0.282336</b>	<b>-0.27145</b>	<b>-1.15513</b>	<b>-1.7761</b>	<b>-1.35759</b>	<b>-0.85559</b>

Source: Compiled by the researcher

As per Table 7 and 8, the financial analysis of VI using the Springate and Altman Z-Score models reveals severe financial distress. The Springate Score averages -0.7489, well below the distress threshold of 0.862, indicating liquidity issues, persistent negative EBIT, and unfavorable working capital ratios. The Altman Z-Score averages -0.85559, significantly below the critical threshold of 1.81, further confirming financial instability. VI's financial position is precarious, highlighting the urgent need for strategic interventions.

**Table 9: Prediction of Financial Distress of the Companies**

Sl. No.	Company Name	Springate S Score	Prediction	Altman Z Score	Prediction
1	BSNL	-0.44766	Distressed	-0.06821	Distress Zone
2	RELIANCE JIO	0.284638	Distressed	0.367517	Distress Zone
3	AIRTEL	0.031739	Distressed	0.470675	Distress Zone
4	VI	-0.7489	Distressed	-0.85559	Distress Zone

Source: Compiled by the researcher

The results of the analysis indicate that both the Springate S Score and Altman Z Score consistently classify all four telecom companies viz., BSNL, Reliance Jio, Airtel, and VI—as financially distressed. For the Springate model, all companies scored below the threshold of 0.862, while for the Altman Z Score, all companies fell below 1.81, indicating they are in the distress zone. The alignment between the two models underscores their reliability and predictive accuracy in evaluating financial distress in the telecom sector.

## 6. Conclusion

The study effectively applies the Altman Z Score and Springate S Score models to assess and predict financial distress among major telecom companies in India, namely BSNL, Reliance Jio, Airtel, and VI, during the five-year period from 2017-18 to 2021-22. The findings reveal that all four companies are in financial distress, with BSNL and VI exhibiting particularly critical financial conditions, as indicated by their significantly negative scores. These results highlight the persistent financial challenges within the Indian telecom sector, driven by high debt levels, competitive pressures, and operational inefficiencies. The study underscores the urgent need for strategic reforms, efficient financial management, and policy interventions to improve financial health, ensure competitiveness, and foster long-term sustainability in this vital sector.

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# Customer Loyalty Programs and Their Financial Impact: An Empirical Study

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## Abstract

*In an increasingly competitive business landscape, companies are continually seeking strategies to enhance customer retention and maximize profitability. One such strategy that has gained importance in today's competitive and complex global market scenario is Customer Loyalty Programs. This paper discusses the financial effects of customer loyalty programs, analyzing their effectiveness in enhancing customer retention and driving revenue growth. By assessing both qualitative and quantitative data, this study evaluates the costs as well as benefits and long term effects of implementing loyalty programs. Through a comprehensive review of existing literature and data collected through choosing three companies, the paper aims to provide insights into what and how businesses can optimize their loyalty programs to maximize financial outcomes. The findings are intended to guide companies that plan to implement loyalty programs in making informed decisions regarding the structure and execution of loyalty initiatives, ultimately contributing to sustained profitability and competitive advantage.*

**Keywords:** *Customer Retention, Revenue Growth, Sustained Profitability, Competitive Advantage, Loyalty initiatives*

## 1. Introduction

In today's world of intense competition among businesses across various industries, survival has become quite a challenge. Therefore, in order to sustain in the market, one of the most common and crucial strategies adopted by businesses is introducing such a program that will ensure consumer retention i.e., customer loyalty programs. With companies investing heavily in such programs, fostering customer engagement and driving up sales has become possible to a remarkable extent. Customer loyalty programs refer to such programs which enable companies to secure customer loyalty and to increase the possibility of retaining customers in a lifetime value. Also known as rewards program, it is a strategy through which businesses entice customers to make repeat purchases. Discounts, free products, early access to new products, other perks etc., are included in loyalty programs. The ultimate purpose is to stimulate consumers to keep coming back in order to avail greater rewards for their purchases as well as their loyalty towards the business. In addition to this, it is important to understand the financial impact of such initiatives on a company's overall operations to ascertain their true effectiveness. This research is hence conducted to examine

the customer loyalty programs and its financial implications of prominent companies. It highlights both direct and indirect consequences on revenue, profits margin and general performance and certain potential drawbacks of those initiatives. Thus, a comprehensive overview that helps in making informed decisions in future about related significant areas is provided.

## **2. Literature review**

Dowling and Uncles (1997) critically examined the impact of customer loyalty programs on sales as well as customer retention. As per them, competitive considerations in tough market conditions may be a crucial reason for introducing consumer loyalty programs. However, even to succeed in that area, the overall value of the product or service must be enhanced by such programs to secure loyal customers for the business. This can facilitate long term survival through adequate earning of profits. Reinartz and Kumar (2002) studied the relationship between customer loyalty and profitability of a business. One of the major problems of customer loyalty programs is the weak correlation between customer loyalty (behavioral loyalty) and profitability. They found that loyalty programs that reward customer behaviour without considering profitability run the risk of imminent failure. This is because loyalty programs of most companies are linked to spending or frequency of usage and not profitability. Majority of the rewards programs tend to become unprofitable due to an increase in customers enrolling to its membership. Kumar and Shah (2004) focussed on the effectiveness of customer loyalty programs on Customer Lifetime Value (CLV) which in turn has a positive impact on the profitability of the company. According to them, CLV is a forward looking concept as compared to the traditional measures such as Share of Purchase/Wallet, Recency, Frequency and Monetary value (RFM) etc. Their research indicated CLV as a tool to support decisions of setting maximum dollar value limit to avoid overspending on the loyalty programs, thus ensuring profitability without compromising the former.

Dorotic et al. (2012) evaluated customer loyalty programs and their financial impact, suggesting that the effectiveness of such initiatives are dependent on a number of factors like program structure, industry type, and customer demographics. It was found that perceived value of particular rewards programs were amplified when those were tailored according to certain motives of the consumers. Besides, age, shopping frequency and other demographic factors also have an impact on the satisfaction related with customer loyalty programs which ultimately influences purchasing behaviour of individuals and change in sales. PavleenSoni and Renu Bhardwaj (2019) used a content analysis approach while examining the benefits of loyalty programs in India. The research showed that offering rewards which impel repeat purchases increase the retention of customers. This is done through customer loyalty programs. According to their analysis, such effective programs also enhance customer satisfaction, referrals, and brand advocacy. Additionally, it highlighted the significance of aligning loyalty strategies with consumer expectations to maximize overall performance and consequently earnings of the company. Sumayya M. and Dr. V. Mahesh (2020) investigated customer loyalty programs' impact on customer retention. They highlighted that acquiring

new customers is costlier than retaining the old ones. The findings showed that rewards programs greatly influence customer retention via strategies like point systems and tier rewards. They also emphasized the importance of relationship marketing which further helps in retaining and maintaining customer loyalty in the long run. This study was conducted in Calicut in the state of Kerala.

### **3. Rationale of the study**

1. The study conducted will facilitate understanding the increasing significance of retaining customers to avoid incurring further cost of acquiring new ones.
2. The findings of this study can contribute to knowing various costs and benefits linked with those programs. In other words, it will provide an understanding of whether the company is able to reap financial benefits out of the costs associated with implementing such programs.
3. This study even highlights the point that companies can be distinctive as compared to their competitors due to the reason that rewards programs result in differentiated competitive markets by providing additional inducements to the customers.
4. The findings will help in ascertaining the development and implementation of accurate customer loyalty programs by the management to support the company's long term financial objectives.

### **4. Objectives of the study**

1. To analyze the financial benefits that businesses obtain from Customer Loyalty Programs.
2. To assess the costs associated with implementing and maintaining Customer Loyalty Programs.
3. To identify the various success factors that determine the effectiveness of such initiatives.
4. To explore long term effects of the program.

### **5. Research Methodology**

The research conducted is based on acquiring information through secondary data. It is the data that has already been collected through primary sources and made readily available for use by others. A mixed method approach is employed facilitating the combination of both quantitative as well as qualitative data in the form of financial data of those companies having customer loyalty programs and certain case studies. Data has been primarily collected from company websites, financial reports, academic journals, newspaper articles available online, and certain other articles published on the internet.

### **6. Findings**

#### **6.1. Flipkart**

Flipkart Private Limited, a leading competitor in the e-commerce sector of India provides a number of customer loyalty programs to enhance customer engagement, drive sales and

have favourable financial results. Initially started as an online book sales service, Flipkart overtime has expanded its product categories to include fashion, home appliances, lifestyle products, groceries and the like. The company was founded by two IIT Delhi alumnus in October 2007 in Bengaluru. Presently, after Walmart has acquired approximately 85% shares in Flipkart, it is incorporated in Singapore and headquartered in Bengaluru.

### **Flipkart SuperCoin**

Among the various rewards programs of Flipkart such as Flipkart plus, Supercoin, Flipkart pay later, Flippi (AI-powered personalized shopping assistant chatbot) etc., this research concentrates on the Supercoin feature offered.

"SuperCoin" was launched in June 2019 by Flipkart. This program allows customers to collect coins for every purchase over Rs. 100 while the Plus members earn double the coins. In simple words, it rewards individuals for shopping on its platform. The coins earned can be redeemed for discounts, gift vouchers, and services across Flipkart, Myntra, Cleartrip, and PhonePe, etc. With over 1.5 billion coins issued every month, the main objective of SuperCoin is to accelerate public participation in the company.

### **Financial benefits of the loyalty program for the company**

Flipkart's SuperCoin feature comes up with certain positive financial outcomes for the company. Because Plus members are able to get double the coins when compared to non-members, so there is a natural inclination towards becoming Plus members. Hence, around 30% of monthly active users are Flipkart Plus members. In addition to this, the program's effectiveness can be judged from its 100% year-on-year growth. Also, customer retention ability of the company has increased as the feature leads to repeat purchases by the customers, thereby lowering customer acquisition costs overtime and increasing profitability. Plus members transact 5 times more and spend 7 times higher than the non-members, indicating an increase in sales. SuperCoin has also led to a notable 20% redemption rate for travel bookings through partner platforms like Cleartrip, suggesting a strong influence on sales leading to increased revenue. Average Value Order has also seen an upward trend because customers tend to spend more and utilise the SuperCoins in other retail stores as well.

### **Success factors of the initiative that determine its effectiveness**

There are some critical success determinants regarding the effectiveness of Supercoins. Most important of all is the high level of consumer engagement due to attributes like challenges and exclusive deals which promote interaction with the consumers. Thus, transaction frequency and customer loyalty flourishes. By entering into partnerships with different brands and service providers, the utility range of SuperCoin is expanded making it accessible to a larger customer base. Along With this, the initiative focuses on a wider demographic with 58% of SuperCoin users from T2 and T3 regions in India. In order to better analyse consumer preferences for improved shopping experience, Flipkart uses details from SuperCoin proceedings. All these factors have a bearing on increasing customer lifetime value and the program's success.

### **Identification of costs and benefits**

It is necessary to know what the various benefits and costs are. As already mentioned, customer retention is one of the main benefits of introducing loyalty programs since it fosters a sense of belongingness among the customers. It encourages people to keep on shopping from Flipkart. Not only in Flipkart, but the SuperCoins can be redeemed in Myntra, Cleartrip etc., which increases attractiveness towards the marketing platform. The data from SuperCoins can be used by the company to tailor its strategies as per customer needs. The facility of SuperCoin Pay allows users to use those coins in over 5,000 retail outlets helping expansion of Flipkart's business beyond just online shopping.

While the program offers a number of benefits to the consumers that boost sales, it does involve costs to be borne by Flipkart. As mentioned previously, about 1.5 billion coins are issued monthly, so when customers redeem them for discounts or rewards, significant costs are incurred by the company. Customer service along with technological infrastructure needed to support the loyalty program necessitate ongoing investment to ensure seamless management of the program. Collaborating with a number of retail partners for the SuperCoin pay feature might involve financial commitments and resource allocation. On top of that, overall promotion of the SuperCoin initiative demands substantial marketing costs. These costs and benefits ultimately offset each other to determine whether Flipkart enjoys higher revenue and market share or not.

### **Long-term effects of Flipkart's SuperCoin as a loyalty program**

Overtime, SuperCoin can aid Flipkart by maintaining a competitive advantage in the market against rivals like Amazon. The company will be able to expand its operations over a wide geographical area enhancing loyalty rewards accessibility for individuals, specially in T2 and T3 regions of the country. With the help of data driven insights through SuperCoins, Flipkart personalized marketing efforts. This can be leveraged to increase conversion rates and devise better-targeted campaigns to improve product offerings and contribute to efficient spending in marketing. The long term profitability of the company will also see a positive side if the loyalty program is implemented properly. This is due to the reason that it will foster deeper customer engagement and a loyal customer base will be built that generates recurring revenue. Partnering with other platforms, further, boosts customer value proposition increasing Flipkart's overall revenue streams. Ultimately, the facility of SuperCoin makes shopping enjoyable for the prospective buyers.

### **6.2. Reliance**

Reliance Industries Ltd., headquartered in Mumbai is the largest public company in India and the 100th largest company in the world. Founded by Dhirubhai Ambani in 1958, initially it was a small venture firm trading mainly in spices and polyester yarn. Later, its business ventures expanded to include energy, natural gas, retail, entertainment, telecommunication, textiles etc. Being one of the most prestigious companies, Reliance offers several rewards programs to attract and retain a huge customer base for long term benefit of the company.

## **Reliance One**

One of the popular loyalty programs of Reliance Industries include the Reliance One program. Also known as ROne, it was initiated in 2007. The program allows customers to acquire membership and earn points for every transaction at participating stores. The earned points can be redeemed for purchases in future in any of the retail outlets of Reliance like JioMart, Reliance Trends, Reliance Fresh, Reliance Digital and more. The company also has a dedicated website for the loyalty program where members can sign in and get their ROne card. The members get a monthly account statement on the website to know their point balances and check on their spending. Most important advantage for customers is that the points in the card never expire.

### **Financial benefits of the loyalty program for the company**

In the context of financial benefits, ROne's performance is impressive. It has reportedly achieved over 10 million registered members. Since the points never become invalid and provide benefits across 1,200+ Reliance stores in India, it ensures long term customer engagement and repeat purchases, thus increasing revenue for the company. Besides, Reliance One has been successful in acquiring an average of one loyal customer per square foot of retail space, depicting strong customer loyalty and retention. It seems that the loyalty program of Reliance has boosted revenue by 5-10% on average although actual revenue particulars are not disclosed by the company. Customers registered in the ROne program receive exclusive offers and which even include birthday offers. This in turn increases the sales by 10-20% as such members are likely to spend more compared to non-members. Such an increase has a straight contribution to higher profitability.

### **Success factors of the initiative that determine its effectiveness**

The Reliance One initiative epitomizes Reliance's dedication towards enhancing customer involvement, experience, loyalty etc. This creates a lasting impression on the members thereby ensuring success of the program. The company is always working on developing an emotional bond with the public beyond mere financial transactions which enable customer retention by fostering a sense of togetherness and community. The ease with which consumers are able to avail the benefits of the loyalty program in the form of uncomplicated registration, earning and redeeming points and tracking balance all act as success determinants of ROne. In addition to this, utilising the points earned through the card in multiple retail outlets of the company across the nation promotes the program's attractiveness and usability. Similar to Flipkart's SuperCoin facility, Reliance One also enables personalization of the rewards based on individual customer data leading to individuals feeling more valued and improving their motivation to participate in the program. Constant communication regarding newest updates and offers help the company to win over customers and maintain their interest.

**Identification of costs and benefits** This needs us to understand the numerous costs and benefits involved in implementing and maintaining the loyalty program. Customer loyalty and retention rates are increased due to the creation of a sense of community and

belongingness amongst all. Thus benefits such as increasing sales, better earnings, competitive advantage etc., are achieved by the company. There is a tendency among the members of such programs to spend more for each purchase in contrast to the non-members because of the incentives and exclusive offers. In this way, there are higher transaction values for the purchases made. Because the Reliance One program aims to provide value by rewards instead of discounts, it enables Reliance to maintain its profit margin even when offering customer incentives. Through ROne website, members can locate a Reliance Retail store where points can be redeemed for purchases made. This facility acts as a benefit for both the individual and the company. Costs can be in the form of initial costs incurred in setting up and developing the software for launching the rewards program. It may also involve expenses for design and implementation of the program infrastructure. Also, various operational costs need to be incurred by Reliance in maintaining the loyalty program. These include administration, customer service support, data management, and transaction processing. Training existing employees to equip them with the usage and latest developments in the loyalty initiative demands allocation of resources and incurring further expenses. To attract individuals towards Reliance One and increase its visibility, different marketing and promotion strategies like advertising campaigns, promotional materials, and partnerships are crucial. These activities lead to additional spending on the part of the company. Every point earned by a member has a redemption value of 70 paise. This indicates that issuing a large number of loyalty points bears costs which affect overall profitability. Above mentioned benefits and costs are weighed against each other to determine ultimate profitability of the ROne loyalty program.

### **Long-term effects of Reliance's ROne as a loyalty program**

With time, Reliance One can ensure lasting benefits for members through personalized alerts, points accumulation, and redemption opportunities. These members also promote the initiative among others that will expand its customer base in the long run. A robust loyalty program will differentiate Reliance from other similar companies in a competitive market, improving customer retention rates and sustained revenue growth. According to studies in the Harvard Business Review, just a 5% increase in retention rates can result in 25-95% increase in profits. Growth in sales may also occur in future due to higher transaction values. Extensive data on consumer behaviour generated through Reliance One program helps the company in presenting better products and services as per the individual preferences. This will result in enhancing overall customer experience and lead to happy and satisfied customers who will help in long term success of the loyalty program.

### **6.3. Swiggy**

Swiggy is an online on-demand food delivery platform with a vision to elevate the quality of life for the urban consumer. It was founded in 2014 by Sriharsha Majety, Nandan Reddy and Rahul Jaimini. The company is headquartered in Bengaluru and has its operations spread across 580 Indian cities. Alongwith delivering food from numerous restaurants, Swiggy is also involved in providing quick commerce services under the name Swiggy Instamart, and

same-day package deliveries with Swiggy Genie. Currently functioning loyalty program launched by Swiggy is called Swiggy One Lite.

### **Swiggy One Lite**

Swiggy One Lite is a popular and affordable version of the Swiggy One membership program. The initiative was launched in October 2023 with the aim of attracting a large number of customers by providing various services at competitive prices. Users can get a three-month subscription at just Rs. 99 where they can enjoy free deliveries on orders above Rs. 149 in addition to other benefits. They also get 10 free deliveries on Instamart orders above Rs 199. Members subscribing to the loyalty program also get a 10% discount on Swiggy Genie deliveries over Rs 60.

### **Financial benefits of the loyalty program for the company**

Even those who previously did not subscribe to the original Swiggy One program are coming forward for Lite subscription due to its affordability. This has a positive impact on the financial gains of the company. The availability of 10 free deliveries in Instamart leads to an increase in the order frequency by individuals, impacting overall sales positively. A broker's report in December 2023 indicated that Swiggy has achieved a 17% year-on-year growth against competitors like Zomato. Such a growth is highly attributed to policies of aggressive pricing and promotion of the loyalty program. Though exact numbers could not be obtained, still it has been said that Swiggy One Lite has enabled the company to gain a better market share and push revenue growth in a favourable direction. It can be said that it is one of the most valuable loyalty programs in the country.

### **Success factors of the initiative that determine its effectiveness**

It is the subscription price of only Rs. 99 for three months which serves as the main reason for the program becoming successful. This is because it appeals to those customers who are budget conscious as they are able to increase savings when compared to competitors. Besides, the facilities of 10 free deliveries on food and grocery orders, plus up to 30% discounts at over 20,000 restaurants add up to the success of the One Lite program since it increases the usage of Swiggy services. Bundling partnerships with telecom and banking services increase value to enhance customer retention. Such measures also improve visibility of the company among the public further integrating Swiggy into daily consumer habits. These strategies collectively aim to boost customer loyalty and appear as a success factor for the Swiggy One Lite program.

### **Identification of costs and benefits**

The launch and implementation of any loyalty program requires investment of certain funds together with incurring expenses. Simply put, it involves certain benefits and costs for successfully operating a loyalty program. To avail the benefits of continuous free deliveries and other discounts, subscribers to the One Lite program are induced to order more frequently. Such high frequencies of orders ultimately lead to an increase in revenue per customer. Customer retention improves as the program makes it beneficial to stick with

Swiggy instead of switching. Thus, the company gets a competitive edge through market differentiation making it difficult for competitors to lure away customers. The well-structured loyalty program offered by Swiggy fosters brand loyalty among the customers encouraging their association with the company. Utilising the membership benefits across food delivery, Instamart, and Genie services of Swiggy enable consumers to expect at least a 6x return on their investment on average, providing exceptional value to customers. All these factors contribute to an increasing CLV, which is of utmost importance for any company's long term survival and profitability. Investment in technology, developing the app and backend systems result in incurring costs. The offers provided by Swiggy One Lite such as free deliveries, exclusive discounts upto 30% on partner restaurants and other discounts on food orders impose financial burden on the company. Swiggy needs to balance these costs with the increase in order volume to compensate for reduction in margin of sales. Cost of free delivery including paying the delivery personnel, fuel, and logistics also impact the profit margin of the company. Marketing strategies like digital advertising, social media campaigns and in-app promotions adopted in order to promote the loyalty program plus attracting customers to subscribe to Swiggy One Lite compels the company to incur expenses. Adhering to customer services in the form of responding to their queries, handling cancellations and renewals and managing subscriptions require spending money on administrative costs. Acquisition costs also increase due to initial offers provided by the company for promoting the One Lite program. Investment in data analytics to understand user behaviour and maximise retention further escalates expenses for the company. These costs are balanced with the benefits earned to understand overall earnings of Swiggy.

### **Long-term effects of Swiggy's One Lite as a loyalty program**

The long-term effects of Swiggy's One Lite customer loyalty program results in increased customer retention, brand loyalty and a broader user base. Convenient membership programs alongwith the benefits offered will attract potential users and convert them into brand loyalty customers. The high order volumes can help in boosting revenue through increased transactions in the future. Further, when members tend to utilise multiple services provided by Swiggy - food delivery, Instamart, Genie - the company may benefit from recurring revenue streams, positively impacting its position in the market for a long period of time. The loyalty program has to be maintained in a proper way to ensure the company's growth against rivals in a highly competitive market structure.

### **7. Limitations**

- a. Lack of adequate time and limited availability of material at the disposal of the researchers hindered proper conduct of the research work.
- b. The research work has been conducted purely on positive results only by ignoring the negative outcomes from customer loyalty programs.
- c. All the information obtained from the sources including company websites are presumed to be factual and authentic.

- d. Face to face interactions, telephonic conversations, e-mails etc., might have assisted in better analysis of the study but these were not used as such information sources were not considered in the present study.
- e. The amounts obtained from various secondary sources are only estimates as those are available in the form of range and not exact figures.

## **8. Conclusion**

In conclusion, customer loyalty programs are strategic investments that can yield great financial benefits if executed successfully. Through the data collected by choosing three companies, it is evident that such programs boost retention, decrease costs, and encourage recurring purchases by customers, and they all are the positive factors for the company's revenue. Nevertheless, the financial effect is not the same for all of the companies; the financial effect of having a loyalty program actually depends on the proper design, execution, and management.

In addition to that, loyalty programs can be very profitable for companies; however, they also involve a huge initial investment and continuous management, which is why companies need to carefully weigh the cost and the expected returns. Businesses must also remain vigilant about the potential for diminishing returns if programs become too costly or fail to engage customers over time. Companies should measure the program's effect on specific business units and time periods to understand its true ROI. The execution of the loyalty programs require a lot of resources, so brands should first evaluate their internal capabilities and if needed, ask for help from experts. To sum up, the provision of customer loyalty programs' benefits comes out of their capacity to really deliver the value that a customer needs, as well as the ability to build a good relationship and the alignment with the organization's broader financial goals. There is a chance for the next studies to investigate ways of maximizing the financial benefits of these programs in various business scenarios and market conditions.

## **9. Suggestions**

- a. Companies that offer customer loyalty programs must analyse consumer behaviour patterns, such as spending habits and brand engagement, before and after enrolling in a loyalty program to gain insight into customer behaviour.
- b. The businesses should investigate how technology, such as data analytics, AI-driven personalisation, and mobile apps, may improve loyalty programs. This will allow them to assess the financial impact of these technological improvements on the efficiency of loyalty programs.
- c. To learn more about how customers' perceptions in regards to loyalty programs that impact the financial performance of the firm, companies could conduct surveys or interviews with consumers to gather feedback.

- d. To investigate developing future trends in loyalty programs, businesses could implement major incentives such as eco-friendly incentives and social media-driven rewards, allowing them to forecast their potential financial impact in the future.

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# Consumer's Attitude and Buying Behaviour of Organic/Green Tea: Special Reference with Cachar District, Assam

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## Abstract

Tea is a part and parcel of Indian social, economic and cultural life. It is the most popular non-intoxicating beverage in the world enjoyed by the rich and poor alike. Nowadays due to rapid urbanization, growing consumer's concern for food safety, increasing health awareness and awareness of environmental degradation, the consumer behaviour is changing towards purchase of many environmental friendly and organic products. Among the organic products, organic tea is one of the major consumer food products produced in India. India ranks first in world organic tea production. In this study, a consumer is considered as an individual who purchases organic/green tea for personal and for family consumption. The present study will be conducted to assess the overall consumer's attitude and buying behaviour of organic/green tea. Primary data for the present study have been collected by using a structured questionnaire from consumers who visited retail stores dealing in organic products from Silchar town.

**Keywords:** Organic/Green tea, Attitudes, Consumer's, Buying behaviour, Environment.

## 1. Introduction

More than 36 countries spread over all the continents except North America with a wide range of agro-climatic conditions between 42°N (Georgia) and 35° S latitude (Argentina) grow tea. The global tea production and consumption during 2016 was 5503 Million Kg and around 5206 Million Kg respectively. Major tea producing and exporting countries are China, India, Kenya and Sri Lanka and account for 80% and 73% of world production and exports respectively. India is the second largest world tea producing and exporting country. India recorded total tea production of 1250.49 Million Kg during 2016-17. Indian tea export registered export figures of 227.63 Million Kg value at Rs.463.50 crores during 2016-17. India accounts for 23% of the total world tea production and 12% of the total world tea exports. In India tea is cultivated in 15 states of which Assam, West Bengal, Tamil Nadu and Kerala are the major tea growing states. World's finest teas like Darjeeling, Assam, Nilgiris and kangra which are famous for their delicate flavour, strength and brightness are produced in India (63<sup>rd</sup> Annual Report 2016-17, Tea Board of India).

Tea is a part and parcel of Indian social, economic and cultural life. It is the most popular non-intoxicating beverage in the world enjoyed by the rich and poor alike. The average per head consumption of tea varies widely from country to country. The

consumption is highest in Turkey (3.20Kg), Afghanistan (2.20Kg) and around 2 Kg in United Kingdom, Libya, Morocco, Qatar. The consumption of tea in India is around 800 grams. Even though per capita consumption of tea is lower in India as compared to other countries, due to its population the tea consumption in India accounts for 19% of the global consumption. Almost 76% of the total production is consumed within the country (63<sup>rd</sup> Annual Report 2016-17, Tea Board of India).

Due to urbanization, growing concerns for food safety, health, and environmental issues, consumer behavior is shifting towards organic products. Green tea, a major organic product in India, is becoming increasingly popular, with demand growing at 17% annually, compared to just 3% for black tea (Bora & Gogoi).

## 2. Review of Literatures

Bora and Gogoi (2018) highlighted green tea's health benefits, noting its rich polyphenol content, especially catechins, which neutralize free radicals. It also contains essential minerals like zinc, iron, and magnesium. They cited a study from Rochester University showing green tea's effectiveness in treating skin damage from cancer radiotherapy. In Assam, small-scale producers are making high-quality organic green tea, fetching premium prices domestically and internationally. The authors emphasized the need for scientific training to help these producers compete with larger players.

Prakash and Mohan (2016) studied consumer attitudes and buying behavior toward organic products in Erode district. They found that 34.42% preferred organic products due to the absence of pesticides, while 43.23% chose them for health reasons. The study highlighted high consumer awareness about avoiding harmful fertilizers and pesticides, with most opting for organic products out of health consciousness.

Balaji and Injodey (2017) studied consumer perceptions of organic food in Bangalore and found that "Consumer Ideology," "Free from Chemicals," and "Health Benefits" influence buying decisions. Among these, "Consumer Ideology" (taste) and "Free from Chemicals" had significant effects, with taste having a stronger impact on purchase behavior. Overall, consumer preference for organic food is primarily shaped by these two factors.

## 3. Objective of the Study

The present study was carried out:

- 1) To study the demographic profile of consumers of organic tea products,
- 2) To understand attitude of the consumers towards organic tea products,
- 3) To find out and analyse the buying behaviour of consumers towards organic tea products.

## 4. Research Methodology

A descriptive research design was used, collecting data from both primary and secondary sources. Primary data came from structured questionnaires distributed to 30 consumers in Silchar who had purchased organic tea. Of these, 22 were completed correctly, yielding a response rate of 73.3%. Secondary data was gathered from journals, reports,

magazines, newspapers, and the internet. Data was analyzed using SPSS and the Simple Percentage Method.

**5. Research Limitations**

There have been some problems in getting information from respondents as they had to be interviewed in a very short time and a few of them were quite busy giving proper thought to the questions. The study is confined to Silchar town only and therefore findings may not be generalised to other areas. Products considered for the study were only limited to organic tea and hence lead to limitations of the study.

**6. Data Analysis and Interpretation**

The study analyzed demographics of the respondents, opinion about organic tea, awareness of the respondents about organic tea, motivation/reasons for preferring organic tea, frequency of purchase of organic tea, monthly expenditure for organic tea, consumption of other organic products and continuity for consumption of organic tea.

**Demographics Profile of the Respondents:**

**6.1 Gender of the respondents**

It is observed from table 1 that more than half (72.7%) of the respondents are male and 27.3% of the respondents are female. Bar graph showing the distribution of the respondents is shown in fig.1.1 below.

**Table 1: Distribution of the respondents according to Gender**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	16	72.7	72.7	72.7
Valid Females	6	27.3	27.3	100.0
Total	22	100.0	100.0	

Source: Primary Data

**6.2 Age Groups of the Respondents:**

It is seen from the table below that 22.7% of the respondents belongs to the age group of 26 - 35 years, 50% of the respondents belongs to the age group of 36 - 45 years, 18.2% of the respondents belongs to 46 - 55 years age group and the remaining 9.1% of the respondents belongs to the age above 56 years.

**Table 2: Distribution of the respondents according to their Age group**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 26 - 35 years	5	22.7	22.7	22.7
Valid 36 - 45 years	11	50.0	50.0	72.7
Valid 46 - 55 years	4	18.2	18.2	90.9
Valid 56 & Above years	2	9.1	9.1	100.0
Total	22	100.0	100.0	

Source: Primary Data

**6.3 Marital Status of the Respondents**

Distribution of the respondents according to their marital status is shown in table 1.3. It is observed from the table that 72.7% of the respondents are married and the remaining 27.3% of the respondents are unmarried.

**Table 3: Distribution of the respondent according to their Marital status**

	Frequency	Percent	Cumulative Percent
Valid Married	16	72.7	72.7
Valid Unmarried	6	27.3	100.0
Total	22	100.0	

Source: Primary Data

**6.4 Educational Qualifications of the Respondents**

It is clear from the table below that the maximum (59.1%) of the respondents are post graduates, 22.7 % are doctorate degree holders, 13.6% are in the high school standards and the rest 4.5% are graduates.

**Table 4: Distribution of the respondents according to their Educational Qualifications**

	Frequency	Percent	Cumulative Percent
Valid High School	3	13.6	13.6
Valid Bachelor's Degree	1	4.5	18.2
Valid Master Degree	13	59.1	77.3
Valid Doctorate Degree	5	22.7	100.0
Total	22	100.0	

Source: Primary Data

**6.5 Occupational of the Respondents**

It is evident from table-5 that the majority (77.3%) of the respondents are government employees, 9.1% of the respondents are engaged in business, and 13.6% of the respondents are agriculturists.

**Table 5: Distribution of respondents according to their Occupational Status**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Service	17	77.3	77.3	77.3
Valid Business	2	9.1	9.1	86.4
Valid Agriculturist	3	13.6	13.6	100.0
Total	22	100.0	100.0	

Source: Primary Data

### 6.6 Family Income of the Respondents

Distribution of the respondents according to their family income is shown in table 1.6. It is cleared from the table that 4.5% of the respondents are earning annually as high as Rs.200,000, 22.7% of the respondents are earning annually from Rs. 200,000 to Rs.400,000, 40.9% of the respondents annual incomes falls from Rs. 400,000 to Rs. 600,000 and the remaining 31.8% of the respondent are earning annually of Rs. 600,000 and above. The result implies that organic tea is mainly consumed by high income groups as compared to low income groups.

**Table 6: Distributions of the Respondents according to their Family Annual Income**

	Frequency	Percent	Cumulative Percent
Valid Less than 200,000	1	4.5	4.5
Between 200,000 - 400,000	5	22.7	27.3
Between 400,000 - 600,000	9	40.9	68.2
More than 600,000	7	31.8	100.0
Total	22	100.0	

Source: Primary Data

### 6.7 Size of the Family

Distribution of the respondents according to their size of the family is shown in table 7. It is clear from the table below that more than half (63.6%) of the respondents have 2 - 3 members in their family, 36.4% of the respondents had 3 - 5 members in their family.

**Table 7: Distributions of the respondents according to their Size of the family**

	Frequency	Percent	Cumulative Percent
Valid 2-3 members	8	36.4	36.4
3-5 members	14	63.6	100.0
Total	22	100.0	

Source: Primary Data

### 6.8 Opinion about Preferring Organic Tea

Table 8 shows the respondents' opinion about organic tea. It is cleared from the table that 31.8% of the respondents opined that organic tea are potentially healthy than non organic tea is one of the reasons for preferring or purchasing organic tea, 27.3% of the respondents feels that organic/green teas are tastier than non organic tea, 13.6% each of the respondents are indicated that organic/green teas are exclusions of synthetic pesticides, exclusions of

chemicals fertilizers and exclusions of added flavour are the reasons for preferring organic/green tea.

**Table 8: Opinion about preferring organic tea**

	Frequency	Percent	Cumulative Percent
Organic tea are potentially healthy	7	31.8	31.8
Organic/green teas are tastier than non organic tea.	6	27.3	59.1
Valid Exclusion of synthetic pesticides	3	13.6	72.7
Exclusions of chemical fertilizers	3	13.6	86.4
Exclusions of added flavour	3	13.6	100.0
Total	22	100.0	

Source: Primary Data

**6.9 Awareness/Sources of Information about Organic Products/Organic Tea**

It is seen from the table below that 31.8% of the respondents are aware or get information about organic products/organic tea from newspapers, 27.3% of the respondents says that they get awareness/get information about organic/green tea or organic products from magazines, 18.2% of the respondents indicated that they get awareness/information from televisions programmes/advertisements, 4.5% of the respondents gets awareness/information from radio advertisements, 9.1% of the respondents says that they get awareness/information during their school or college life as it is taught in the school or college. 4.5% each of the respondents get awareness/information from promotional/educational events and word of mouth from the growers. The results imply that the producers/marketers should have more promotion of organic tea/organic products through audio media, more educational events like seminars/conferences for organic products.

**Table 9: Awareness/Sources of Information about Organic Products/Organic Tea**

	Frequency	Percent	Cumulative Percent
Newspapers	7	31.8	31.8
Magazines	6	27.3	59.1
Valid Televisions Programmes/ Advertisement	4	18.2	77.3
Radio/ Advertisement	1	4.5	81.8
Taught in school and college	2	9.1	90.9
At a promotional/Educational event	1	4.5	95.5
Word of mouth	1	4.5	100.0
Total	22	100.0	

Source: Primary Data

**6.10 Reasons of Preferring for Organic Tea/Products**

It is cleared from the table that 36.4% of the respondents are motivated/reasons for preferring of organic tea because of their environmental concern, 22.7% of the respondents indicated that they are motivated or preferred for their health consciousness, 22.7% of the respondents says that they need to consumed organic tea/products due to doctor's advice.

**Table 10: Reasons for preferring for organic tea**

	Frequency	Percent	Cumulative Percent
Valid Health Consciousness /Nutrition value	5	22.7	22.7
Environmental concern	8	36.4	59.1
Doctor's advice	4	18.2	77.3
Price/Affordability	5	22.7	100.0
Total	22	100.0	

Source: Primary Data

**6.11 Frequency of purchasing organic tea**

The frequency of purchasing organic tea is shown in table 11. It is clear from the table that 50% of the respondents are purchasing organic tea every month, 27.3% of the respondents said that they purchase organic tea weekly, and 18.2% of the respondents agree that they purchase organic tea yearly.

**Table 11: Frequency of purchasing organic tea**

	Frequency	Percent	Cumulative Percent
Valid Weekly	6	27.3	27.3
Monthly	11	50.0	77.3
Every six months	4	18.2	95.5
Yearly	1	4.5	100.0
Total	22	100.0	

Source: Primary Data

**6.12 Consumptions of Organic Products**

It is seen from the table below that 40.9% of the respondents consuming organic fruits and vegetables besides consumption of organic tea, 22.7% of the respondents are consuming organic dairy products and the rest 18.2% each of the respondents are consuming organic cereals and other organic products respectively.

**Table 12: Consumptions of other organic products**

	Frequency	Percent	Cumulative Percent
Valid			
Organic dairy products	5	22.7	22.7
Organic fruits and vegetables	9	40.9	63.6
Organic cereals	4	18.2	81.8
Others	4	18.2	100.0
Total	22	100.0	

Source: Primary Data

**6.13 Monthly Expenditure Incurred for Organic Tea/Products**

The monthly expenditure incurred for purchasing/consumption of organic tea/products is shown in table 13. It is clear that 31.8% of each of the respondents are spending between Rs. 101 to Rs.200 and between Rs. 201 to Rs. 300 for consumption or purchasing of organic tea respectively. 27.3% of the respondents said that they incurred an amount of Rs. 1 to Rs.100 only in a month for purchasing or consumption of organic tea/products. The remaining 4.5% of the respondents spend monthly Rs.301 to Rs.400 and Rs.500 and above for purchasing organic tea/organic food products respectively.

**Table 13: Monthly Expenditure for organic tea**

	Frequency	Percent	Cumulative Percent
Valid			
Rs.1 - 100	6	27.3	27.3
Rs.101 - 200	7	31.8	59.1
Rs.201 - 300	7	31.8	90.9
Rs. 301 - 400	1	4.5	95.5
Rs. 5.00 & above	1	4.5	100.0
Total	22	100.0	

Source: Primary Data

**6.14 Continuity/Consider Buying Organic Tea if...**

The table shows that 36.4% of respondents would buy organic tea if it's cheaper than non-organic tea, 31.8% if they had more income, and 22.7% if it were more accessible. 4.5% would consider buying if the packaging was more recognizable or if more information was available through media. This suggests producers should focus on pricing, accessibility, and strong branding.

**Table 14: Continuity/Consider buying organic tea if...**

	Frequency	Percent	Cumulative Percent
Valid			
More cheap prices than non organic products/tea	8	36.4	36.4
More income	7	31.8	68.2
More accessible in the market	5	22.7	90.9
More recognizable packaging and labelling	1	4.5	95.5
More information in the media	1	4.5	100.0
Total	22	100.0	

Source: Primary Data

**6.15 Relationship between the Respondents Age and Reasons for Preferring Organic Tea**

Table 15 highlights the relationship between age and reasons for preferring organic tea. Across all age groups, 36.4% prioritize environmental protection, 22.7% health consciousness, and 22.7% affordability. Only 18.2% prefer it due to doctors' advice. Younger respondents (26-35 years) focus on health and environment, while older groups (46+ years) also consider affordability.

**Table 15: Age groups of the respondents \* Reasons for Preferring Organic Tea/Product Cross tabulation**

	Reasons for Preferring Organic Tea/Product				Total
	Health Consciousness /Nutrition value	Environmental concern	Doctor's advice	Price/ Affordability	
26 - 35 years	2(40%)	3(60%)	0	0	5(100%)
36 - 45 years	2(18.2%)	3(27.3%)	2(18.2%)	4(36.4%)	11(100%)
46 - 55 years	1(25.0%)	1(25.0%)	2(50.0%)	0	4(100%)
56 & Above years	0	1(50.0%)	0	1(50.0%)	2(100%)
Total	5(22.7%)	8(36.4%)	4(18.2%)	5(22.7%)	22(100%)

Source: Primary Data

**6.15 Relationship between the Respondents Educational Qualification and Reasons for Preferring Organic Tea**

Table 16 shows the relationship between educational qualifications and reasons for preferring organic tea. High school-educated respondents prioritized health, environment, and doctor’s advice. All graduates preferred it for environmental protection. Among master’s degree holders, 46.2% cited environmental protection, 23.1% health, and 15.4% each chose doctor’s advice and affordability.

**Table 16: Educational qualifications of the respondents \* Reasons for Preferring Organic Tea/Product Cross tabulation**

		Reasons for Preferring Organic Tea/Product				Total
		Health Consciousness /Nutrition value	Environmental concern	Doctor’s advice	Price/ Affordability	
Educational qualifications of the respondents	High School	1(33.3%)	1(33.3%)	1(33.3%)	0	3(100%)
	Bachelor's Degree	0	1(100%)	0	0	1(100%)
	Master Degree	3(23.1%)	6(46.2%)	2(15.4%)	2(15.4%)	13(100%)
	Doctorate Degree	1(20.0%)	0	1(20.0%)	3(60.0%)	5(100%)
Total		5(22.7%)	8(36.4%)	4(18.2%)	5(22.7%)	229(100%)

Source: Primary Data

Among doctorate degree holders, 36.4% prefer organic tea for environmental concerns, 22.7% for health consciousness and affordability, and 18.2% due to doctor's advice. Overall, the main reasons for preferring organic tea are environmental protection (36.4%), health consciousness and affordability (22.7%), and doctor's advice (18.2%).

**7. Suggestions**

The study revealed that the majority of the respondents opined that organic tea is potentially healthier than non-organic tea, organic teas are tastier than non-organic tea, excluding pesticides and fertilizers. Hence, it is suggested that the mass of the consumers shall be made aware and initiate their buying motive towards organic tea/products by the promoters and producers is the need of the hour.

**8. Conclusion**

Hence, the study concludes that irrespective of the respondent's educational qualifications, main reasons for preferring organic tea are in protecting the natural environment, health consciousness, price/affordability of the products and doctors advice. Thus, it is necessary for the promoters, producers and the government to give more awareness to the consumers to protect the natural environment, to instill the good nature of

the organic/green product/tea in the minds of the consumers through promotional events. The Government should also make it mandatory to obtain certification for their production to the producers and the producers should consider important factors in viewing the consumers characteristics before they set the price.

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