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RESEARCH ARTICLE

Cross-Dimensional Differences in Sustainability Disclosures: Evidence from Large-Cap NSE-Listed Companies in India

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Abstract

This paper explores cross-dimensional variations in sustainability disclosure intensity in 50 large-cap National Stock Exchange (NSE)-listed companies through an integrated model based on Business Responsibility and Sustainability Reporting (BRSR) requirements and Global Reporting Initiative (GRI) standards. It focuses on the transition from voluntary to mandatory BRSR adoption over the financial years 2021-22 and 2022-23. Sustainability disclosures are measured using weighted percentage scores derived from a structured BRSR-GRI mapping framework. The results show that there is systematic disclosure variability by dimension, with specific dimensions being uniformly more emphasized. Nonparametric tests (Friedman and Wilcoxon signed-rank) substantiate the presence of significant cross-dimensional differences and identifies the significant change in the level of disclosures over time, whereas the relative positioning across dimensions remains rather stable. These trends are in line with the regulatory shift to compulsory BRSR and are reflective of the changing disclosure practices, yet causal inference falls outside the scope of the study. The findings point at stable relative ordering cross-dimensional imbalances and the necessity of more balanced reporting guidance. The paper adds value by operationalising an integrated BRSR-GRI framework, and offering comparative evidence on sustainability disclosure behaviour in an emerging market.

Keywords Sustainability Reporting · BRSR · Global Reporting Initiative (GRI) · National Stock Exchange (NSE) · Large-Cap Companies · Corporate Sustainability

1. Introduction

Sustainability reporting has become an important tool of reporting corporate performance that is not based on conventional financial viewpoints, especially in the face of growing environmental and social issues. Organisations have an increased expectation to report on the economic, environmental, and social impacts of their operations, as a result of transparency and accountability concerns on a broader basis. As a result of this, sustainability reporting emerged as an essential tool for corporations to communicate their economic, environmental and social performance to various stakeholders whose concerns are not limited to only the financial performance of the organisation but also want to know how the organisation contributes to long term sustainable development.

The Global Reporting Initiative (GRI) has emerged as the most widely used and accepted standard for sustainability reporting with more than 14,000 organisations and 100 countries all over the world, adopting these standards to report their sustainable performance.

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With rising stakeholder awareness within the country and participation of Indian corporates in global value chains, India has also joined the world in bringing forward reforms in sustainability reporting. The Securities and Exchange Board of India (SEBI) introduced Business Responsibility Reporting (BRR) in the year 2012 and later replaced it with a more comprehensive Business Responsibility and Sustainability Report (BRSR), comprising of a number of essential (mandatory) and leadership (voluntary) indicators which made it mandatory for the top 1,000 listed companies by market capitalisation to submit this report from the year 2022-23. In the year 2021-22, this reporting was voluntary. Although this regulatory change has taken place, companies usually tend to align their reports with internationally recognized models like the GRI and therefore, international and national reporting standards coexist.

Large-cap companies, especially those listed on the National Stock Exchange (NSE), constitute a large portion of the Indian corporate sector in terms of market capitalisation, scope of operation and stakeholder exposure. These firms are also likely to be more transparent and comprehensive in sustainability reporting because of their visibility and impact, thus being a pertinent setting to analyse the disclosure practices.

Although sustainability reporting has become a significant topic, a significant empirical question not yet answered is, whether there are systematic variations in disclosure intensity across the dimensions. Current research is, to a large extent, concerned with the level of aggregate disclosure or determinants, but it does not pay much attention to cross-dimensional variation, especially in the context of new regulatory frameworks, like BRSR.

This gap is addressed by the current study which examines the extent and variation in sustainability reporting in large-cap Indian firms in terms of economic, environmental, and social aspects. It also looks at differences in disclosure behaviour in the early phases of the mandatory BRSR implementation. In addition, the study develops and operationalises an integrated framework by mapping GRI indicators to BRSR requirements, which is not only used for constructing a disclosure index but also for analysing disclosure patterns across categories of regulatory alignment (essential, leadership, and not covered indicators). By doing so, the study extends the existing literature by offering both a systematic and comparative analysis of cross-dimensional disclosure patterns and new empirical insights into how regulatory coverage influences the extent and distribution of sustainability disclosures in an emerging market context.

2. Literature Review

2.1. Evolution of Sustainability Reporting and the Role of GRI Standards

Sustainability reporting has grown to be a more organised and standardised reporting framework rather than being a largely voluntary and qualitative one. The adoption of the Global Reporting Initiative (GRI) standards is one of the factors that have largely contributed to this transition (Aljajawy et al., 2023). GRI has become a widely used and internationally recognised reporting framework of economic, environmental, and social performance, with more than 100 countries and thousands of organisations adopting it (Global Reporting Initiative, 2023).

Empirical research based on large multinational samples indicates that the systematic character of GRI standards increases transparency and boosts stakeholder trust, especially among large multinational corporations (Vigneau & Adams, 2023). Nevertheless, there remains differences in the quality and consistency of sustainability reporting among firms despite its greater adoption. According to (Boiral & Henri, 2017), the adoption of GRI indicators in a selective manner imposes a limit on comparability and can undermine the overall disclosure transparency, which shows that standardisation does not guarantee consistent reporting practices.

2.2. Determinants and Variations in Sustainability Disclosure Practices

Various organisational and institutional variables based on survey evidence, such as the pressure of stakeholders and regulatory conditions, influence the sustainability disclosure practices (Laskar & Maji, 2016). The literature has provided conflicting evidence on the relative focus laid on the various aspects of sustainability. Indicatively, a survey by (Khan et al., 2011) reveals that companies are more likely to report a

greater amount on the social aspect, and (Amin et al., 2022) record higher and more consistent reporting on the economic aspect.

Regulatory developments have also been influential in the disclosure practices in the Indian context. The more standardised and benchmarked sustainability disclosures have been promoted by the introduction of the Business Responsibility and Sustainability Reporting (BRSR) framework on the top 1,000 listed companies by the Securities and Exchange Board of India (SEBI) (Gaikwad, 2024). Irrespective of these developments, there are a number of challenges. (Dhuri et al., 2026) discuss the gaps in sector-specific disclosures, whereas (Gogia et al., 2026) focus on constraints in corporate sustainability literacy. (Rajkannan Rajan, 2025) expresses similar concerns, implying that regulatory compliance might not be sufficient to guarantee high-quality reporting.

Despite the fact that companies are becoming more convergent in their disclosures towards common frameworks like GRI, discrepancies still exist owing to internal and external limitations. (Al-Shaer et al., 2022) mention that reporting quality depends on organisational features, whereas (Thoradeniya et al., 2015) mention institutional pressures and managerial discretion as the main factors affecting the disclosure variability. These variations in disclosure practices can be understood through stakeholder theory, as firms respond differently to the expectations of diverse stakeholder groups.

2.3. Emergence of BRSR and Sustainability Reporting Developments in India

With the introduction of the BRSR framework in May 2021, sustainability reporting in India has undergone a major transformation. BRSR is a continuation of the previous Business Responsibility Reporting (BRR) and increases the range and volume of disclosures on sustainability observed using panel data (Kajal & Bansal, 2025). It is organized into nine principles addressing the three pillars of sustainability and has been made compulsory for the largest 1,000 listed companies by market capitalisation from the financial year 2022-23 (Shruti Vijay Vaghela, 2024).

Early indications show that BRSR has led to enhanced transparency and comparability in sustainability reporting among Indian companies. (Nial & Parashar, 2024) establish that the framework supports the alignment of national reporting practices with the global standards. The transition has however not been without challenges. According to (Jain & Tripathi, 2022), there are long-standing problems of data availability, standardisation of measurement, and embedding sustainability into the fundamental business decision-making. These results suggest that although BRSR does create a regulatory base, the impact of sustainability reporting is actually determined by the internalisation and actualisation of such practices by firms beyond the regulatory obligation.

2.4. Imbalance in Sustainability Disclosure Across the Three Dimensions of Sustainability

The lack of balance in the economic, environmental, and social aspects is a significant issue in sustainability reporting. Available literature shows that organizations tend to concentrate on those disclosure areas in which there are stronger stakeholder and regulatory pressures. As an example, (Michelon et al., 2015) show that the pressure of stakeholders is critical in the formation of the content and scope of sustainability disclosures.

In particular, environmental reporting has been found to be more detailed and broader based since it is subject to increased scrutiny by the regulators, civil society and the general population. (Hahn & Kühnen, 2013) believe that such scrutiny gives incentives to firms to focus on environmental disclosures, at the cost of economic disclosures in certain cases. The first reason could be that economic information has already been widely reported in conventional financial reporting, making it less vital in sustainability reports.

Nonetheless, there is no uniform pattern in the current literature. (Yadava & Sinha, 2016) present the data confirming that in some situations, companies can be more focused on the economic disclosures than on the environmental and social aspects. These contradicting results indicate that disclosure priorities are context-specific and they depend on institutional, regulatory and firm-specific factors.

Although the cross-dimensional imbalance is an increasing subject of scholarly interest, empirical evidence on the topic is sparse and isolated, specifically in the emerging market context. The vast majority of the

previous research results are either aggregate disclosure levels or specific dimensions alone, with little utilization of structured and comparable frameworks to comprehensively evaluate dissimilarities in all three pillars of sustainability. This restricts the capacity to make consistent conclusions on the relative weight that is given to each of the dimensions.

These disclosure asymmetries can also be indicative of legitimacy-motivated behaviour, in which companies focus more on those dimensions that are more visible and open to external examination to continue to be accepted by society. Meanwhile, in terms of stakeholder, the firms can invest more effort in disclosure in dimensions that are more salient to the external stakeholders. These considerations demonstrate the necessity of having a systematic and comparative study of sustainability disclosures across dimensions through integrated framework in the backdrop of changing regulatory landscapes as applied in the Business Responsibility and Sustainability Reporting (BRSR) framework in India.

3. Research Gap

Despite the existing body of research on sustainability reporting, some studies pay little attention to the differences between the economic, environmental, and social dimensions, as most of the existing literature addresses the aggregate level of disclosure or such broad constructs as corporate social responsibility (García-Sánchez et al., 2020; KPMG, 2020).

In addition, prior studies have largely examined the determinants and market implications of sustainability reporting, while comparatively fewer studies analyse cross-dimensional differences using structured reporting frameworks such as the Global Reporting Initiative (GRI) (Manes-Rossi & Nicolo', 2022). Consequently, there is little empirical evidence on whether firms have balanced disclosures along dimensions or have systematic differences in emphasis (Hummel & Schlick, 2016).

The research work on sustainability reporting is in its infancy in the context of emerging markets like India. Although recent reports record progress in disclosure practices in terms of regulatory efforts like the Business Responsibility and Sustainability Reporting (BRSR) framework, they also emphasize that the difference in the focus on the different dimensions of sustainability remains apparent (Bhatia & Tuli, 2017). Nonetheless, the majority of such studies still depend on GRI-based evaluations alone, and there is little attempt to apply BRSR requirements to the empirical research.

Moreover, despite the recent efforts to study the connection of GRI and BRSR frameworks, the existing literature is more theoretical and fails to operationalise the integration of their combination into a systematic empirical method of measurement. Specifically, systematic mapping of GRI indicators to BRSR categories of essential, leadership, and uncovered indicators is lacking. As a result, there is a paucity of empirical data on cross-dimensional trends of sustainability reporting on the basis of an integrated BRSR-GRI model, particularly among large-cap organizations with mandatory reporting policies. This research fills this gap by developing a disclosure index that is formed through systematic mapping of the GRI indicators to the BRSR requirements and comparing the differences in disclosure intensity in economic, environmental and social facets of large-cap companies listed on the National Stock Exchange.

4. Theoretical Framework

In recent times, Sustainability reporting has emerged as the language through which companies communicate their non-financial performance, i.e., the economic, environmental and social performance to all the concerned stakeholders. This current study is based primarily in stakeholder theory and legitimacy theory. These theories, when used together, provide us with a lens to explore the differences in sustainability reporting practices across the selected large-cap firms listed in the National Stock Exchange.

4.1. Stakeholder Theory

The stakeholder theory states that the companies are accountable not just to the ones who own the shares of the company, but also to the society at large which includes a wide range stakeholders which include customers, employees, communities, regulators, the environment etc (Edward Freeman & Phillips, 2002). According to

this perspective, the information needs of the wide spectrum of stakeholders are fulfilled by the companies through sustainability reporting. The economic pillar discloses about sustainable procurement practices, risk management and overall sustainable economic position of the company. The environmental pillar addresses the concerns related to climate change, greenhouse gas emissions, the steps taken by the organisation to minimise environmental damage etc. And the third pillar, i.e., the social pillar discloses information related to labour practices, community engagement etc.

The selected large-cap firms listed in the National Stock Exchange are some of the largest corporations of the country which makes them subject to increased public scrutiny due to greater visibility. Emergence of global reporting practices like Global Reporting Initiative (GRI), have made it easier for the organisations to communicate their non-financial performance in a comparable and standardised manner.

Consequently, the stakeholder theory states that the firms which have greater visibility and a larger stakeholder base maybe more likely to report their non-financial performance with greater degree of details and in sync with global standards across all the three dimensions of sustainability reporting. However, as the importance of different group of stakeholders vary from company to company, there may be differences in the degree of reporting across the three pillars of sustainability.

4.2. Legitimacy Theory

Legitimacy theory is based on the thought that the organisations usually perform their functions in such a way that it is in sync with the norms and expectations of the various stakeholders and the society within which it functions (Suchman, 1995). The awareness and concern for environmental degradation, working conditions and social inequality as well as corporate accountability has increased all over the world. As a result of this, the corporations have started using sustainability reporting to increase their legitimacy in this regard.

India is still an emerging economy and the norms of sustainability reporting are still evolving. These selected large-cap firms listed in the National Stock Exchange, are large companies with economic dominance and greater public visibility, due to which, they are likely to engage in more detailed sustainability reporting resulting from increased legitimacy pressure. The use of globally accepted sustainability reporting norms like the Global Reporting Initiative (GRI) signify compliance with the global standards and help to strengthen organisational legitimacy. The legitimacy theory aims to explain why organisations tend to emphasise certain areas of sustainability reporting more than the others, depending on varying societal and stakeholder expectations.

4.3. Integration of Stakeholder and Legitimacy Theory

The integration of stakeholder and legitimacy theory provide a lens to interpret the sustainability reporting measures of the companies to a great extent. While stakeholder theory explains how differing stakeholder demands shape disclosure priorities, legitimacy theory explains why firms strategically emphasise more visible dimensions to maintain societal approval. Together, these perspectives provide complementary explanations for potential imbalances in sustainability reporting across dimensions

The integration of these theories supports the study of examining the extent and differences in sustainability reporting across the three pillars of sustainability by the selected large-cap firms listed in the National Stock Exchange.

4.4. Proposed Expectations

Drawing on stakeholder and legitimacy theory, the study develops the following expectations regarding sustainability disclosure patterns across dimensions:

- **Expectation 1 (Stakeholder Salience):**
  Environmental and social disclosures are expected to exhibit higher disclosure levels than economic disclosures, as these dimensions attract greater attention from regulators, civil society, and external stakeholders.

- **Expectation 2 (Legitimacy Pressure):**
  Firms are likely to emphasise environmental and social disclosures to maintain legitimacy, as these dimensions are more visible and subject to public scrutiny compared to economic sustainability disclosures.
- **Expectation 3 (Relative Parity):**
  Environmental and social disclosures are expected to exhibit relatively similar levels, as both dimensions are closely linked to external legitimacy concerns and stakeholder expectations.

5. Objectives

- To evaluate the level of sustainability disclosures across economic, environmental, and social dimensions.
- To analyse changes in sustainability disclosure levels between 2021-22 and 2022-23 in the context of the BRSR transition.
- To examine cross-dimensional differences in sustainability disclosure intensity across the three sustainability dimensions.

6. Research Methodology

6.1. Research Design

This study is empirical and analytical in nature. The researcher has adopted this research design in order to empirically investigate the sustainability reporting practices of the select companies. The approach of quantitative content analysis has been employed to assess the extent and differences in disclosure practices across the three sustainability dimensions, i.e., economic, environmental and social dimensions.

6.2. Population of the Study

The sample was selected based on the universe of listed companies on the National Stock Exchange (NSE) of India. The large-cap companies were determined using market capitalisation rankings as of 31 March 2023, which is the end of the study period. This date of selection was chosen with the aim of ensuring that the selection of firms is based on current firm size at the time of analysis and to avoid the use of forward-looking information.

Data collection took place in November 2025, although the sample selection was pegged to this historical reference date to prevent look-ahead bias, and to ensure that the sampling frame and the study period are aligned.

The first sample included companies that were large-cap, in relation to their market capitalisation as of 31 March 2023. Firms were included in the final sample if they had accessible and complete sustainability disclosures for both financial years 2021-22 and 2022-23. The firms were excluded when the sustainability reports were either not available in both the years or they were not complete or the firm experienced changes in its structure that affected comparability between the two years.

According to these criteria, the final sample is 50 firms and this would provide a balanced panel dataset. This methodology makes sure that the sample is representative of the size of firms at the time of a regulatory transition and not affected by the later changes in the performance of the firms. Appendix C gives the list of sample firms.

6.3. Periodicity of the Study

This study covers the financial years 2021-22 and 2022-23, capturing the transition phase of the BRSR framework. While BRSR was introduced in May 2021 and remained voluntary for the financial year 2021-22, it became mandatory for the top 1,000 listed companies from 2022-23 onwards. These two years therefore reflect the initial adaptation of firms to the evolving regulatory requirements.

The study follows the same set of firms across both years, and no firm entry or exit is considered within the analysis. This ensures that observed differences in disclosure patterns are attributable to changes in reporting behaviour rather than changes in sample composition.

6.4. Sources of Data

This study is exclusively based on secondary data that have been collected from the company websites. The sustainability reports of the companies were studied to collect the required data and in cases where the companies have not published standalone sustainability reports, the annual reports of the companies were analysed.

6.5. Measurement of Sustainability Disclosures

Sustainability disclosures were assessed by mapping the GRI 200 (economic), GRI 300 (environmental), GRI 400 (social) series standards to the voluntary and essential indicators under the BRSR framework. A Sustainability Disclosure Index was constructed comprising of indicators across all the three dimensions of sustainability, mapping the GRI indicators against the BRSR disclosure requirements, supported by regulatory guidance based on the Global Reporting Initiative-Securities and Exchange Board of India linkage framework (Global Reporting Initiative (GRI); SEBI; BSE, 2022), thereby supporting a more structured and guidance-informed integration framework. Given the unequal number of indicators across GRI dimensions, all scores were normalised to percentage values to ensure cross-dimensional comparability. The following weighted scoring mechanism was used-

Table 1. Measurement of Sustainability Disclosure (Note: The indicators used for constructing the sustainability disclosure index and their correspondence with BRSR indicators are presented in Appendix A2.)

Score	Disclosure Status	Interpretation
0	GRI indicator not reported and no justification provided	Non-disclosure
1	GRI indicator reported and covered under mandatory BRSR	Mandatory compliance
2	GRI indicator reported and covered under voluntary BRSR	Voluntary disclosure within BRSR
3	GRI indicator reported but not covered under BRSR	Disclosure beyond regulatory requirements
NA	Indicator not reported but justification provided	Excluded from index calculation

Source: Developed by the authors using GRI Standards and BRSR Framework

Note: Scores are used to compute weighted disclosure percentages for each sustainability dimension.

Indicators marked as "NA" were excluded from the denominator only when a clear and specific justification for non-disclosure was provided by the firm. The acceptable reasons were that the indicator was not applicable to the operations of the firm (e.g. non-existence of some activities), or not material, or regulatory exemption clearly mentioned in the report. Statements that were not substantively explained but were written in a generic form were not considered as valid justification and were coded as non-disclosure (score = 0).

The mapping procedure was carried out in an organized protocol to improve the transparency of the methodology. The GRI indicators were considered against each one of the nine principles and indicators in the BRSR framework. GRI indicator was considered covered (essential) when the disclosure requirements were explicitly linked to mandatory BRSR indicators. It was considered as covered (leadership) where it matched voluntary or advanced disclosures that was promoted under BRSR. When no substantive overlap with BRSR reporting requirements could be found, the indicators were categorized as not covered.

It was classified using three criteria: (i) conceptual similarity of the disclosure topic, (ii) overlapping in the nature of information needed and (iii) overlapping in the intent of disclosure (e.g., compliance, impact reporting or governance transparency). In cases where there was no exact correspondence a thematic match was taken.

The disclosure index for each dimension was calculated as:

$$Disclosure\ Index = \frac{\sum Weighted\ Scores\ of\ Applicable\ Indicators}{Maximum\ Possible\ Score\ of\ Applicable\ Indicators} \quad (1)$$

The index constructed is intended to reflect the breadth and scope of sustainability disclosures, rather than the depth or credibility of reporting. The scoring scheme differentiates the non-disclosure, compliance with mandatory BRSR regulations, voluntary disclosures within the BRSR framework, and disclosures beyond the scope of BRSR. Accordingly, higher scores represent a wider coverage of disclosure and not necessarily higher quality.

The scoring system (0-3) is ordinal in nature and lies on the increasing levels of disclosure scope. A 0 score means non-disclosure, whereas the 1 and 2 scores signify growing levels of compliance with mandatory and voluntary BRSR requirements. Disclosures that are not included in the BRSR framework are assigned a score of 3. This classification is founded on the assumption that such disclosures go beyond what domestic regulations expect regarding reporting and thus represent an expanded disclosure coverage.

Nonetheless, this ranking is conditional upon the assumption that disclosures that are outside the regulatory framework are a wider reporting scope than voluntary BRSR disclosures. Although it is conceptually based on the notion of discretionary transparency, this assumption does not mean that such disclosures are superior in quality and importance. The categories are thus considered as ordinal indicators of a growing disclosure breadth, which is in line with previous content analysis-based disclosure indexes used in sustainability research.

The index consists of 16 economic, 32 environmental and 36 social indicators (Appendix A1). To ensure transparency, the number of indicators excluded due to "NA" classification was tracked across dimensions and years. Though the omission of such indicators does not penalise firms that make non-applicable disclosures, it may have an impact on comparability by changing the denominator of the index.

All the disclosure scores were normalised into percentage to help increase comparability between firms and dimensions. Mean NA indicators per firm were also calculated (Appendix Table B), with the largest number of exclusions being environmental indicators, then social indicators, and finally economic indicators did not have any such exclusions. Normalisation minimises, but does not completely remove, the effect of denominator variability.

A sensitivity analysis was carried out to measure the strength of the scoring scheme by using an unweighted binary disclosure index, where each indicator was coded as 1 when it was disclosed and 0 when it was not disclosed. The results of this analysis are consistent with the main findings, indicating that the observed cross-dimensional patterns are not driven by the weighting structure.

Since the GRI Standards and the BRSR framework differ in structure and scope, thematic alignment of disclosure topics was used to perform the mapping rather than the strict equivalence of the indicators. Additional advice on how GRI indicators can be mapped to the BRSR framework was based on reference to official interpretative material published by the Securities and Exchange Board of India which give indicative linkage between GRI-based disclosures and BRSR reporting requirements. This aided in ensuring that it was not purely researcher-driven but originated in regulatory advice.

Nonetheless, since the GRI-SEBI document offers directional, but not one-to-one correspondence, thematic alignment of the disclosure topics was used to make final mapping decisions. This method is in line with previous sustainability disclosure literature where absolute similarity between frameworks do not exist.

The researcher coded and mapped disclosures manually through the use of a uniform coding protocol in both years and across all firms. All sustainability reports were thoroughly examined, and disclosures were coded in accordance with the scoring system, which was pre-defined. In order to be consistent, the same rules of interpretation were used across the entire dataset, and ambiguous cases were reconsidered several times, until final classification. As the coding process was carried out by a single researcher, formal inter-coder reliability testing such as Cohen's Kappa were not applicable. Nonetheless, to reduce subjectivity, GRI-SEBI interpretative guidance (Global Reporting Initiative (GRI); SEBI; BSE, 2022), pre-determined classification criteria, and cross-checking of mapped indicators were used to guide coding decisions. The method is in line with previous content analysis research based on structured coding schemes.

An example is GRI 305 (Greenhouse Gas Emissions) that was mapped to BRSR essential indicators of Scope 1 and Scope 2 emissions because its reporting requirements directly aligned. By comparison, GRI 203 (Indirect Economic Impacts) was considered to be not covered in which no explicit BRSR indicator covered similar disclosures. The same was applied to indicators like GRI 308 (Supplier Environmental Assessment)

that were mapped to the leadership indicators under BRSR since they represent long supply chain reporting that is promoted but not required within the framework.

The sustainability disclosure index is designed as a composite measure with each individual indicator representing a different facet of reporting on economic, environmental and social fronts. Since the indicators are not homogeneous and they are not meant to measure one latent construct, internal consistency measures like Cronbach's alpha are not thought to be suitable in validation. The index is thus viewed as a measure of extent and coverage of disclosures and not a psychometric scale. Accordingly, the integrated framework should be interpreted as a structured and guidance-informed approach rather than a fully validated measurement model.

The analysis in this study aims at cross-sectional, as opposed to temporal stability in reporting behaviour, difference in disclosure intensity across sustainability dimensions.

6.6. Statistical Tools and Techniques

Descriptive statistical tools were used in order to summarise the sustainability disclosure scores. Skewness and Kurtosis statistics, along with Kolmogorov-Smirnov and Shapiro-Wilk tests were used to assess the normality of the data which was also supported by the visual inspection of box plots and histogram. The Friedman test was used in order to examine the differences in reporting across the three dimensions of sustainability (economic, environmental and social). The Friedman test indicated significant differences; therefore, Wilcoxon-signed rank tests were used for pairwise comparison of the dimensions. All the statistical analyses were done using SPSS. For post-hoc pairwise comparisons, a Bonferroni adjustment was applied to control for Type I error arising from multiple comparisons.

7. Results and Discussion

This section presents results corresponding to Objectives 1-3.

All disclosure values reported in the tables represent weighted sustainability disclosure percentages derived from the constructed disclosure index. The percentages indicate the proportion of applicable GRI indicators disclosed by each firm under the respective sustainability dimension.

7.1. Normality Test Results

Table 2. Skewness and Kurtosis of Weighted Disclosure Percentages (Representative results)

Dimension	Mean (%)	Std. Deviation (%)	Skewness	Kurtosis
Economic	49.22	12.44	1.644	4.760
Environmental	63.66	14.03	-0.358	-0.200
Social	61.39	15.69	0.309	-0.511

Source: Author's Calculation

Table 3. Test of Normality (Representative results)

Dimension	Kolmogorov-Smirnov Sig.	Shapiro-Wilk Sig.
Economic	0.064	< 0.001
Environmental	0.183	0.365
Social	0.200	0.256

Source: Author's Calculation

Normality was assessed for both years (2021-22 and 2022-23) using skewness, kurtosis, and Shapiro-Wilk tests. The results indicated deviations from normality, particularly for the economic disclosure variable. For brevity, only the normality statistics for 2021-22 are presented in Table 2 and Table 3, as the results for 2022–23 were substantively similar.

Given the presence of non-normality and the use of related samples across dimensions, non-parametric tests were considered appropriate. Accordingly, the Friedman test was used to examine cross-dimensional differences, followed by Wilcoxon signed-rank tests for pairwise comparisons and year-wise changes.

7.2. To evaluate the level of sustainability disclosures across economic, environmental, and social dimensions

Table 4. Descriptive Statistics of Sustainability Disclosure (Weighted Disclosure Percentages)

a. Year 2021-22

Dimension	N	Minimum (%)	Maximum (%)	Mean (%)	Std. Deviation (%)
Economic	50	31.58	100.00	49.22	12.44
Environmental	50	32.43	95.85	63.66	14.03
Social	50	35.96	97.67	61.39	15.69
Total	50	36.94	95.71	58.31	12.23

Source: Author's Calculation

b. Year 2022-23

Dimension	N	Minimum (%)	Maximum (%)	Mean (%)	Std. Deviation (%)
Economic	50	31.58	100.00	52.07	12.66
Environmental	50	33.33	98.16	64.94	14.18
Social	50	38.20	100.00	63.32	15.57
Total	50	38.48	97.47	61.18	12.52

Source: Author's Calculation

Descriptive statistics of weighted disclosure percentages indicate moderate levels of sustainability disclosure across both years. In 2021-22, environmental disclosure recorded the highest mean percentage (63.66), followed by social (61.39) and economic (49.22). A similar pattern is observed in 2022-23, with environmental (64.94) and social (63.32) disclosures exceeding economic disclosure (52.07). This indicates a stable relative ordering of cross-dimensional pattern, where environmental and social disclosures dominate.

The relatively high differences (standard deviation) indicate that while some companies have broader disclosure coverage, some other companies lag behind, leading to differences across the sample. Similar trends of heterogeneity in sustainability reporting practices have also been observed in multiple markets (Kend, 2015).

The cross-dimensional differences are also illustrated in Figure 1, which visually highlights the relatively higher environmental and social disclosures compared to economic disclosures across both years.

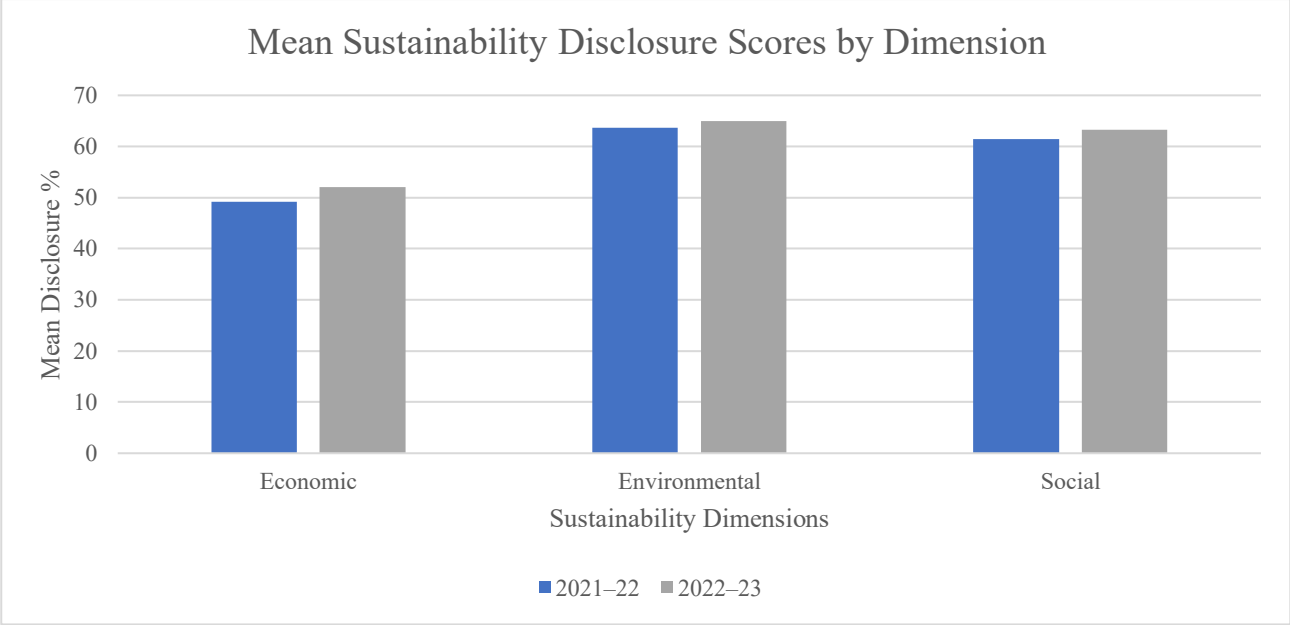

Figure 1. Mean Sustainability Disclosure Scores Across Dimensions (2021-22 and 2022-23)

7.3. To analyse changes in sustainability disclosure levels between 2021-22 and 2022-23 in the context of BRSR transition.

Table 5. Year-wise Comparison of Weighted Disclosure Percentages (Wilcoxon Signed-Rank Test)

Dimension	Z-value	p-value	Effect size (r)	Result
Economic	-5.687	< 0.001	0.80	Significant Increase
Environmental	-5.508	< 0.001	0.78	Significant Increase
Social	-6.068	< 0.001	0.86	Significant Increase
Total	-6.154	< 0.001	0.87	Significant Increase

Source: Author's Calculation

To examine whether sustainability disclosures improved over time, a Wilcoxon signed-rank test was conducted for paired observations across 2021-22 and 2022-23. The results indicate a statistically significant increase in disclosure scores across all three dimensions. Economic disclosure showed a significant increase ($Z = -5.687$, $p < 0.001$), followed by environmental ($Z = -5.508$, $p < 0.001$) and social disclosure ($Z = -6.068$, $p < 0.001$). The total sustainability disclosure score also increased significantly ($Z = -6.154$, $p < 0.001$).

The effect sizes were large across all dimensions (r ranging from 0.78 to 0.87), indicating a substantial magnitude of change. These findings provide strong evidence of an increase in sustainability disclosure levels between the two years.

Moreover, the gradual improvement in overall sustainability disclosure from 2021-22 to 2022-23 is associated with an increase in transparency in reporting the non-financial performance. Given that this period coincides with the transition toward mandatory Business Responsibility and Sustainability Reporting (BRSR), the findings are indicative of a potential regulatory influence in shaping disclosure behaviour. The observed increase in disclosures is broadly consistent with legitimacy theory, which suggests that firms may use sustainability reporting to align with evolving societal expectations.

While the findings show a statistically significant increase in disclosure levels, the study design does not permit causal inference, and the observed changes should be interpreted as associative rather than causal.

7.4. To examine cross-dimensional differences in disclosure intensity across the three sustainability dimensions.

Table 6. Friedman Test Results for Differences in Weighted Disclosure Percentages Across Dimensions

Year	Mean Rank (Economic)	Mean Rank (Environmental)	Mean Rank (Social)	χ^2	df	p-value
2021-22	1.27	2.52	2.21	40.625	2	< 0.001
2022-23	1.33	2.42	2.25	32.667	2	< 0.001

Source: Author's Calculation

In order to examine the differences in reporting across the three dimensions of sustainability (economic, environmental and social), Friedman test was employed. The effect size (Kendall's W) indicates a moderate to strong degree of difference across dimensions (W = 0.406 for 2021-22 and W = 0.327 for 2022-23). The results showed that the differences among the dimensions are statistically significant for both the years 2021-22 (χ^2 = 40.625, $p < 0.001$) and 2022-23 ($\chi^2 = 32.667$, $p < 0.001$). The mean rank shows that environmental disclosure ranks the highest, followed by social disclosure and economic disclosure remains the lowest. The findings indicate significant imbalance in sustainability disclosure across dimensions.

The results suggest that the firms do not treat the three dimensions of sustainability equally, with the environmental and social dimensions receiving more attention as compared to the economic dimension. Prior research also revealed similar patterns, where, due to the visibility and the perceived impact, the non-economic reporting was prioritised in the corporate sustainability reports (Clarkson et al., 2008). Also, this pattern of reporting has remained stable over both the years that were studied, which suggests that it is not a random observation but may indicate relatively stable reporting preferences across sustainability dimensions over the study period.

Table 7. Wilcoxon Signed Rank Test Results (Post-hoc)

Year	Comparison	Z value	p-value	Result
2021-22	Environmental vs Economic	-5.590	< 0.001	Environmental > Economic
2021-22	Social vs Economic	-5.118	< 0.001	Social > Economic
2021-22	Social vs Environmental	-1.364	0.173	Not significant
2022-23	Environmental vs Economic	-5.374	< 0.001	Environmental > Economic
2022-23	Social vs Economic	-5.016	< 0.001	Social > Economic
2022-23	Social vs Environmental	-1.036	0.300	Not significant

Source: Author's Calculation

Post-hoc analysis was conducted using Wilcoxon signed-rank tests with Bonferroni-adjusted significance levels ($\alpha = 0.05/3 = 0.017$). The results show that environmental and social disclosures are significantly higher than economic disclosure ($p < 0.001$) for both years. However, no statistically significant difference is observed between environmental and social disclosures.

To further examine the analytical relevance of the integrated GRI-BRSR framework, disclosure scores were analysed across categories of indicators based on their alignment with BRSR requirements. The category-wise analysis pooled indicators across all three sustainability dimensions and applied the same weighted 0-3 scoring framework used in the main disclosure index. Although the resulting scores were normalised into percentages, the categories differ structurally in terms of the types of disclosures represented under the coding framework. Accordingly, the results should be interpreted as indicative of relative disclosure patterns across categories rather than perfectly equivalent disclosure intensities.

Table 8. Weighted Disclosure Percentages by BRSR Indicator Category (Essential, Leadership, and Not Covered)

Indicator Category	2021–22 Mean (%)	2022–23 Mean (%)	Std. Dev. (2021–22)	Std. Dev. (2022–23)
Essential	85	87	8	8
Leadership	56	57	18	18
Not Covered	46	48	16	16

Source: Author's Calculation

Note: The table reports mean weighted disclosure percentages and standard deviations for indicators classified based on their alignment with the BRSR framework. "Essential" refers to indicators aligned with mandatory BRSR requirements, "Leadership" refers to voluntary disclosures encouraged under BRSR, and "Not Covered" refers to GRI indicators not explicitly mapped to BRSR. Disclosure scores are calculated as weighted disclosure percentages using the same 0-3 scoring framework applied in the main disclosure index, based on applicable indicators within each category.

To further utilise the integrated GRI-BRSR framework, disclosure scores were analysed across categories of indicators for both years. The results show that indicators aligned with mandatory BRSR requirements (essential indicators) exhibit the highest disclosure levels in both 2021-22 (85%) and 2022-23 (87%), accompanied by low variability (standard deviation = 8% in both years), indicating stable reporting across firms. In contrast, leadership (voluntary) indicators record moderate disclosure levels (56% and 57%) with higher variability (standard deviation = 18%), suggesting uneven adoption across firms. Indicators not covered under the BRSR framework show comparatively lower disclosure levels (46% and 48%) and considerable variation (standard deviation = 16%). A modest increase in disclosure levels is observed across all categories over time; however, the relative pattern remains stable. The stability in standard deviation across years suggests that while disclosure levels improved, the degree of variation across firms remained largely unchanged. These findings suggest that regulatory alignment is associated with differences in disclosure levels in terms of the extent and cross-dimensional distribution of sustainability disclosures.

To sum it up, the results reveal that even though sustainability reporting continues to broaden and improve over time, certain dimensions receive more focus and tend to be in the foreground as compared to others.

7.5. Sensitivity Analysis (Binary Disclosure Index)

The binary disclosure analysis was conducted using pooled firm-year observations across both financial years (2021-22 and 2022-23). Accordingly, the total number of observations reported in Table 9 is 100, representing 50 firms observed over two years.

Table 9. Descriptive Statistics of Binary Disclosure Percentages (Pooled Firm-Year Observations)

Dimension	N	Minimum (%)	Maximum (%)	Mean (%)	Std. Deviation (%)
Economic	100	37.50	100.00	56.44	10.79
Environmental	100	32.00	100.00	71.97	13.25
Social	100	52.78	97.06	72.68	10.79

Source: Author's Calculation

Table 9 presents descriptive statistics based on the unweighted binary disclosure index. Environmental (71.97%) and social disclosures (72.68%) exceed economic disclosures (56.44%), indicating a similar relative ordering across dimensions as observed in the weighted index.

Table 10. Friedman Test and Pairwise Comparisons (Binary Disclosure Index)

Test	χ^2	df	p-value
Friedman Test	108.196	2	< 0.001

Pairwise Comparisons (Bonferroni-adjusted)

Comparison	p-value	Result
Environmental vs Economic	< 0.001	Environmental > Economic
Social vs Economic	< 0.001	Social > Economic
Social vs Environmental	1.000	Not Significant

Source: Author's Calculation

The Friedman test indicates that differences in disclosure across dimensions remain statistically significant ($\chi^2 = 108.196$, $p < 0.001$). Pairwise comparisons show that environmental and social disclosures are significantly higher than economic disclosures ($p < 0.001$), while no significant difference is observed between environmental and social dimensions ($p > 0.05$).

Overall, the results demonstrate a stable relative ordering across dimensions, with environmental and social disclosures consistently exceeding economic disclosures, indicating a persistent cross-dimensional imbalance. The similarity of results between the weighted and binary indices suggests that the main findings are not driven by the weighting scheme.

8. Conclusion and Implication of the Study

The study evaluated sustainability reporting practices of a sample of large-cap companies through a hybrid framework that incorporated Business Responsibility and Sustainability Reporting (BRSR) requirements and Global Reporting Initiative (GRI) standards. The analysis covers the financial years 2021-22 and 2022-23, representing the transition period of the BRSR framework from voluntary to mandatory adoption. These years thus reflect early-stage reporting behaviour of companies as they adapted to changing regulatory demands.

Findings show that the environmental and social disclosures are reported to a larger extent than economic disclosures in both years. Moreover, there is also a slight improvement in the levels of disclosure in all three dimensions during the study period. These findings indicate a relatively consistent cross-dimensional disclosure pattern in which environmental and social disclosures exceed economic disclosures. In addition, indicators aligned with mandatory BRSR requirements exhibited higher disclosure coverage and lower variability relative to leadership and not-covered indicators. However, the results must be viewed as an indication of the disparities in the disclosure coverage and not the qualitative power or credibility of reporting practices.

A gradual increase in disclosure scores is observed during the period of BRSR transition. Although the given pattern is correlated with the implementation of mandatory reporting requirements, the study does not establish causality between BRSR implementation and the disclosure behaviour. These findings nevertheless provide a useful insight into sustainability reporting behaviour during the early phase of BRSR implementation. The observed increase coincides with evolving regulatory expectations and may reflect a potential regulatory influence. Simultaneously, economic disclosures are relatively lower in both years, which indicates that there is an imbalance in reporting in dimensions.

From a policy perspective, the findings may indicate the need for greater balance in sustainability reporting across economic, environmental, and social dimensions. Although the general level of disclosure increases, the comparatively low level of economic disclosures indicates that additional development of reporting frameworks can be viewed as an opportunity to promote more detailed coverage. But these implications are suggestive, since the effectiveness of regulation is not directly evaluated in the study.

The study also has implications for discussions relating to the alignment of national and global sustainability reporting frameworks. The integration of BRSR and GRI indicators may provide a structured

approach to measuring disclosure practices and has the potential to enhance comparability across companies. However, these potential benefits are not directly evaluated in the present study.

Theoretically, the results fall in line with stakeholder and legitimacy views. These findings are consistent with Expectation 1 and Expectation 2, as environmental and social disclosures exceed economic disclosures, and with Expectation 3, as no significant difference is observed between environmental and social dimensions. It has been indicated by previous studies that environmental disclosures tend to be more observable and linked with stakeholder scrutiny (Kolk, 2016). Equally, social disclosures are often highlighted with respect to their applicability to the wider stakeholder interests (Michelon et al., 2013). Accountability, in relation to environmental impacts has also been associated with environmental disclosures (Cormier & Magnan, 2015). Research also shows that companies might focus on disclosure areas, which enhance legitimacy and reputation among stakeholders (Benjamin et al., 2024). This trend has been both prevailing in both the emerging and developed markets where companies have been matching disclosures to the expectations of the society (Wang, 2017). This kind of strategic focus is also linked to differentiation based on sustainability reporting practices (Velte, 2017). Moreover, previous studies point out the interrelatedness of environmental and social dimensions, which could be the reason as to why no substantial differences were observed between the two dimensions in the current investigation (Searcy, 2012). Nonetheless, these descriptions are subjective because the research does not directly look into the motivating forces behind disclosure behaviour.

While the findings broadly align with stakeholder and legitimacy perspectives, they do not fully explain the underlying drivers of disclosure behaviour. For instance, the persistence of lower economic disclosures across both years suggests that factors beyond stakeholder visibility, such as the perceived redundancy of economic information in financial statements or internal reporting priorities, may influence disclosure choices. Additionally, the absence of significant differences between environmental and social disclosures indicates that legitimacy pressures may operate similarly across these dimensions, limiting the ability of the theoretical framework to distinguish between them. These observations highlight that while stakeholder and legitimacy theories provide useful interpretive lenses, they may not fully capture the complexity of disclosure decision-making.

The combination of the GRI indicators and the BRSR framework may also provide more interpretive information. The discussion of the levels of disclosure by the different categories of indicators shows that, regulatory alignment is linked to increased and more persistent disclosure behaviour. Those indicators that are in line with obligatory BRSR requirements have more disclosure and less variability, whereas leadership indicators represent moderate levels of disclosure with more variation between firms. Those indicators that were not included in the BRSR framework exhibit relatively lower disclosure levels and greater variability across firms. These trends are consistent with the possibility that regulatory coverage may influence disclosure practices. These findings are however to be considered as indicative as opposed to causal since the study does not conduct any detailed indicator-level statistical testing.

While the findings are broadly consistent with stakeholder and legitimacy perspectives, the study does not directly examine organisational motivations, stakeholder pressure, or causal regulatory mechanisms underlying disclosure behaviour.

On the whole, the findings confirm the presence of cross-dimensional differences and slight sustainability disclosure improvements in the initial stages of BRSR implementation. The results add to the knowledge of sustainability reporting trends within the context of an emerging economy and provide a structured approach for analysing the disclosure practices through the integrated national and global frameworks.

9. Limitations and Further Research Suggestions

Despite the detailed discussion of sustainability reporting practices in the three dimensions, the study has some limitations. To begin with, the sample is restricted to the chosen large-cap companies, and as such the results cannot be generalised to smaller or unlisted firms, which may have a different reporting strategy. Second, the research spans two years that include the first year of BRSR implementation which might not be enough to make conclusions regarding the long-term sustainability reporting behaviour.

Also, the content-analysis scoring system, even though being grounded in GRI Standards and with the interpretative guidance provided by the Securities and Exchange Board of India (SEBI) (Global Reporting Initiative (GRI); SEBI; BSE, 2022), is associated with a certain amount of interpretive judgment, as the

mapping between GRI indicators and BRSR categories is indicative, not precise. Although the coding was performed in a structured coding protocol, the coding was done by one researcher and the lack of formal inter-coder reliability testing is also likely to have an impact on reproducibility.

Moreover, although the research uses non-parametric tests to analyse the change over the years, it fails to capture more nuanced interaction effects over time and dimensions. Consequently, the results are to be viewed as a pointer of the general trends and not dynamic structural changes in disclosure behaviour. In addition, since disclosure index reflects the degree of reporting and not the depth of reporting, the findings indicate variations in disclosure coverage between dimensions not variations in the quality of reporting.

Finally, the use of a fixed panel of firms may limit the ability to capture changes in the composition of the broader large-cap segment over time. These limitations can be resolved in the future by considering a longer time period, a larger sample of firms, and by conducting indicator-level or dynamic analysis to better comprehend how sustainability reporting practices evolve.

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Declarations

Competing Interests The authors declare no competing interests.

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Appendices

Appendix A

Appendix A1. Summary of Indicator Coverage by Dimension and BRSR Classification

Dimension	Total Indicators	Essential	Leadership	Not Covered
Economic	16	5	0	11
Environmental	32	16	8	8
Social	36	22	4	10
Total	84	43	12	29

The three GRI series differ in the number and type of indicators, which results in variation in the total number of items across dimensions. As shown in Table A1, the environmental and social dimensions contain a larger number of indicators compared to the economic dimension, and also include a mix of 'essential' and 'leadership' disclosures. In contrast, the economic dimension has relatively fewer mapped indicators and no leadership-level items under the BRSR framework.

To ensure comparability across dimensions despite these differences, disclosure scores were normalised as percentages based on the applicable indicators within each dimension. This standardisation ensures that variations in the number of indicators do not bias the results, and that disclosure intensity reflects relative coverage rather than absolute counts.

This classification also forms the basis for further analysis of disclosure patterns across indicator categories (essential, leadership, and not covered), enabling an assessment of how regulatory alignment influences disclosure behaviour.

Appendix A2. Mapping of GRI Indicators with BRSR Framework Used in the Sustainability Disclosure Index

(Note: As the GRI Standards and the BRSR framework have different structures and scopes, the mapping was conducted using thematic alignment of disclosure topics, **supported by guidance from SEBI on the linkage between GRI standards and BRSR indicators**.)(Global Reporting Initiative (GRI); SEBI; BSE, 2022). Classification into "essential," "leadership," or "not covered" was based on conceptual similarity, disclosure intent, and overlap in reporting requirements. In cases of partial alignment, the closest thematic correspondence was adopted. This classification is further utilised in the study to analyse disclosure patterns across indicator categories.)

Dimension	GRI Indicator	Indicator Description	BRSR Coverage
Economic (200 Series)	201-1	Economic Performance	Covered (Essential)
	201-2	Climate Change Risk	Not Covered
	201-3	Defined Benefit Plan	Not Covered
	201-4	Government Assistance	Not Covered
	202-1	Minimum wage	Covered (Essential)
	202-2	Senior Management from Local Community	Not Covered
	203-1	Infrastructure Investment Supported	Not Covered
	203-2	Significant Indirect Economic Impacts	Not Covered
	204-1	Procurement Practices	Covered (Essential)
	205-1	Corruption Risk Assessment	Not Covered
	205-2	Anti-Corruption Training	Not Covered
	205-3	Incidents of Corruption	Covered (Essential)
	206-1	Anti-Competitive Behaviour	Covered (Essential)
	207-1	Approach to Tax	Not Covered
	207-2	Tax Governance, Control & Risk Management	Not Covered
	207-3	Management of Tax Concerns	Not Covered

Appendix A2 (cont.). Mapping of GRI Indicators with BRSR Framework Used in the Sustainability Disclosure Index

Dimension	GRI Indicator	Indicator Description	BRSR Coverage
Environmental (300 Series)	301-1	Materials Used	Not Covered
	301-2	Recycled Input Material	Covered (Leadership)
	301-3	Reclaimed Product & Packaging Material	Covered (Essential)
	302-1	Energy Consumption (within organisation)	Covered (Essential)
	302-2	Energy Consumption (outside organisation)	Not Covered
	302-3	Energy Intensity	Covered (Essential)
	302-4	Reduction in Energy Consumption	Covered (Leadership)
	302-5	Reduction in Energy Consumption of Products & Services	Not Covered
	303-1	Interactions with Water	Not Covered
	303-2	Water Discharge Related Impact	Not Covered
	303-3	Water Withdrawal	Covered (Essential)
	303-4	Water Discharge	Covered (Leadership)
	303-5	Water Consumption	Covered (Essential)
	304-1	Operations Near Area of High Biodiversity	Covered (Essential)
	304-2	Impact on Biodiversity	Covered (Leadership)
	304-3	Habitats Protected & Restored	Covered (Leadership)
	304-4	IUCN & National Conservation List Species	Not Covered
	305-1	Scope 1 GHG Emission	Covered (Essential)
	305-2	Scope 2 GHG Emission	Covered (Essential)
	305-3	Scope 3 GHG Emission	Covered (Leadership)
	305-4	GHG Emission Intensity	Covered (Essential)
	305-5	Reduction in GHG Emission	Covered (Essential)
	305-6	Ozone Depleting Substances	Covered (Essential)
	305-7	Air Emissions	Covered (Essential)
	306-1	Waste Generation & Impact	Not Covered
	306-2	Waste Impact Management	Covered (Essential)
	306-3	Waste Generated	Covered (Essential)
	306-4	Waste Diverted from Disposal	Covered (Essential)
	306-5	Waste Directed to Disposal	Covered (Essential)
	306-3(2016)	Significant Spill	Not Covered
	308-1	New Supplier Screening Using Environmental Criteria	Covered (Leadership)
	308-2	Supply Chain Environmental Impact & Action Taken	Covered (Leadership)
Social (400 Series)	401-1	Employee Hired & Turnover	Not Covered
	401-2	Benefits for Full Time Employees	Covered (Essential)
	401-3	Parental Leave	Covered (Essential)
	402-1	Labour/Management Relations	Not Covered
	403-1	Occupational Health & Safety Management System (OHSMS)	Covered (Essential)
	403-2	Hazard Identification, Risk Assessment & Investigation	Covered (Essential)
	403-3	Occupational Health Services	Not Covered
	403-4	Worker Participation, Consultation & Communication on OHSMS	Not Covered

Appendix A2 (cont.). Mapping of GRI Indicators with BRSR Framework Used in the Sustainability Disclosure Index

Dimension	GRI Indicator	Indicator Description	BRSR Coverage
Social (400 Series)	403-5	Training on Occupational Health	Covered (Essential)
	403-6	Promotion of Worker Health	Covered (Essential)
	403-7	Occupational Health & Safety Impact in Business Relationships	Not Covered
	403-8	Workers Covered by an OHSMS under legal requirement	Not Covered
	403-9	Work Related Injuries	Covered (Essential)
	403-10	Work Related Ill health	Covered (Essential)
	404-1	Average Training Hours per Employee	Covered (Essential)
	404-2	Employee Skill Upgradation Programmes	Covered (Essential)
	404-3	Performance & Career Development Review	Covered (Essential)
	405-1	Diversity in Governance Bodies & Employees	Covered (Essential)
	405-2	Ratio of Basic Salary to Men & Women	Not Covered
	406-1	Incidents of Discrimination	Covered (Essential)
	407-1	Right to Freedom of Association	Covered (Essential)
	408-1	Incidents of Child Labour	Covered (Essential)
	409-1	Incidents of Forced or Compulsory Labour	Covered (Essential)
	410-1	Security Personnel Training in Human Rights	Not Covered
	411-1	Violation of Rights of Indigenous People	Covered (Essential)
	413-1	Local Community Engagement	Covered (Essential)
	413-2	Negative Impact on Local Community	Covered (Leadership)
	414-1	New Supplies Screening Using Social Criteria	Covered (Leadership)
	414-2	Supply Chain Social Impact & Action Taken	Covered (Leadership)
	415-1	Political Contributions	Not Covered
	416-1	Health & Safety Assessment of Product & Service	Not Covered
	416-2	Incidents of Non-Compliance of Health & Safety Impact of Product & Service	Covered (Essential)
	417-1	Labelling Requirement of Product & Service	Covered (Leadership)
	417-2	Incidents of Non-Compliance of Product & Service Information Labelling	Covered (Essential)
	417-3	Non-Compliance Incidents of Market Communication	Covered (Essential)
	418-1	Incidents of Breach of Consumer Privacy & Data	Covered (Essential)

Appendix B

Appendix B. Average NA Indicators by Dimension

The variation in N/A indicators across dimensions is accounted for through percentage normalisation, ensuring comparability of disclosure scores across firms and categories. (Rounded to two decimal places)

Dimension	Year	Avg. NA Indicators
Economic	2021-22	0.00
Economic	2022-23	0.00
Environmental	2021-22	6.44
Environmental	2022-23	6.44
Social	2021-22	2.18
Social	2022-23	2.18

Appendix C

Appendix C. List of Sample Firms

The following table presents the list of firms included in the sample. These firms correspond to large-cap companies listed on the National Stock Exchange (NSE), identified based on market capitalisation rankings as of 31 March 2023. The final sample consists of 50 firms for which complete sustainability disclosure data were available for both financial years 2021-22 and 2022-23. The selection of firms is consistent with the sampling criteria described in Section 6.2.

Sl. No.	Companies
1	Adani Enterprises Ltd.
2	Adani Ports and Special Economic Zone Ltd.
3	Apollo Hospitals Enterprise Ltd.
4	Asian Paints Ltd.
5	Axis Bank Ltd.
6	Bajaj Auto Ltd.
7	Bajaj Finserv Ltd.
8	Bajaj Finance Ltd.
9	Bharti Airtel Ltd.
10	Bharat Petroleum Corporation Ltd.
11	Britannia Industries Ltd.
12	Cipla Ltd.
13	Coal India Ltd.
14	Divi's Laboratories Ltd.
15	Dr. Reddy's Laboratories Ltd.
16	Eicher Motors Ltd.
17	Grasim Industries Ltd.
18	HCL Technologies Ltd.
19	Housing Development Finance Corporation Ltd.
20	HDFC Bank Ltd.
21	HDFC Life Insurance Company Ltd.
22	Hero MotoCorp Ltd.
23	Hindalco Industries Ltd.
24	Hindustan Unilever Ltd.
25	ICICI Bank Ltd.
26	IndusInd Bank Ltd.
27	Infosys Ltd.
28	ITC Ltd.
29	JSW Steel Ltd.
30	Kotak Mahindra Bank Ltd.
31	Larsen & Toubro Ltd.
32	Mahindra & Mahindra Ltd.
33	Maruti Suzuki India Ltd.
34	Nestle India Ltd.
35	NTPC Ltd.
36	Oil & Natural Gas Corporation Ltd.
37	Power Grid Corporation of India Ltd.

Sl. No.	Companies
38	Reliance Industries Ltd.
39	SBI Life Insurance Company Ltd.
40	State Bank of India
41	Sun Pharmaceutical Industries Ltd.
42	Tata Consumer Products Ltd.
43	Tata Motors Ltd.
44	Tata Steel Ltd.
45	Tata Consultancy Services Ltd.
46	Tech Mahindra Ltd.
47	Titan Company Ltd.
48	UltraTech Cement Ltd.
49	UPL Ltd.
50	Wipro Ltd.