

Corporate Social Responsibility Expenditure under India's Mandatory CSR Regime: A Comparative and Statistical Analysis of Leading Pharmaceutical Companies

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Abstract

Purpose: This paper examines the dimension, trend, and inter-firm variability of Corporate Social Responsibility (CSR) expenditure among leading Indian pharmaceutical companies across the first full decade of the mandatory CSR regime introduced under Section 135 of the Companies Act, 2013.

Methodology: The study formulates on secondary data hand-collected from the audited annual reports and CSR disclosures of five pharmaceutical companies selected through purposive (judgemental) sampling on the basis of market capitalisation — Sun Pharmaceutical Industries Ltd, Divi's Laboratories Ltd, Torrent Pharmaceuticals Ltd, Cipla Ltd, and Dr. Reddy's Laboratories Ltd — for the ten financial years from 2015–16 to 2024–25. Descriptive statistics (mean, median, standard deviation, variance, skewness and kurtosis) and one-way Analysis of Variance (ANOVA) are used to test whether the mean CSR expenditure differs significantly across the sample firms.

Findings: CSR expenditure rose for every sample firm over the study period, while the pace and stability of growth diverged considerably. Dr. Reddy's Laboratories Ltd recorded the highest mean expenditure (₹45.79 crore), followed by Cipla Ltd (₹40.96 crore), Divi's Laboratories Ltd (₹31.88 crore), Torrent Pharmaceuticals Ltd (₹21.09 crore) and Sun Pharmaceutical Industries Ltd (₹19.84 crore). The one-way ANOVA ($F = 4.502$, $p = 0.0038$) rejects the null hypothesis of equality of means at the 5 percent level of significance, confirming that CSR spending among the sampled firms is statistically non-uniform.

Originality: By covering the complete first post-mandate decade for a sector with a direct bearing on public-health outcomes, the study provides sector-specific comparative evidence that complements the largely cross-industry Indian CSR literature, offering an empirical benchmark for regulators, CSR committees, and institutional investors.

Keywords: Corporate Social Responsibility; CSR Expenditure; Pharmaceutical Industry; Companies Act, 2013.

Introduction

Corporate Social Responsibility (CSR) indicates the voluntary and, in the Indian context increasingly statutory, integration of social and environmental concerns into corporate decision-making and stakeholder relations. It indicates a shift in the theory of the firm away from a narrowly construed shareholder-wealth-maximisation objective towards a broader stakeholder orientation in which profitability is pursued jointly with community welfare, employee well-being, and environmental stewardship. In the Indian setting, CSR has a long philanthropic lineage predating formal regulation: business houses such

as the Tata, Birla, Bajaj, and Godrej groups funded schools, hospitals, and charitable trusts well before CSR was codified in law, reflecting an ethic of trusteeship rather than a compliance obligation.

This voluntary tradition was formally institutionalised with the enactment of the Companies Act, 2013. Section 135 of the Act made India the first jurisdiction in the world to mandate CSR expenditure: qualifying companies — those with a net worth of ₹500 crore or more, turnover of ₹1,000 crore or more, or net profit of ₹5 crore or more in any financial year — are required to constitute a CSR Committee of the Board and spend at least two percent of average net profits of the preceding three financial years on activities specified in Schedule VII. The provision converted CSR from a discretionary act of corporate philanthropy into a quasi-fiscal obligation, and subsequent amendments (relating to impact assessment, transfer of unspent amounts to designated funds, and enhanced disclosure) have progressively tightened compliance and reporting requirements.

The pharmaceutical industry covers a distinctive position within this regulatory architecture because its core business — the discovery, manufacture, and distribution of medicines — already intersects directly with public health outcomes. Pharmaceutical firms' CSR portfolios typically extend beyond generic community development into preventive healthcare, disease-awareness campaigns, maternal and child health, medical research, and access-to-medicine initiatives, often in partnership with government health missions and the United Nations Sustainable Development Goals (SDGs) agenda. This dual exposure — as regulated CSR spenders and as public-health actors — makes the sector an analytically interesting setting in which to examine whether statutory CSR mandates translate into comparable levels of expenditure across firms of differing size, profitability, and strategic orientation.

Existing empirical work on India's mandatory CSR regime has generally and studied broad, cross-sectoral samples (for example, NIFTY 100 or BSE-listed firms) and has concentrated on the immediate pre- and post-mandate transition. Comparatively little attention has been paid to sector-specific, decade-long trajectories that capture how CSR spending has shifted once the mandate matured — through subsequent regulatory tightening, the COVID-19 pandemic, and the post-pandemic recovery. This paper covers that gap by tracing and statistically comparing the CSR expenditure of five leading pharmaceutical companies over the ten financial years from 2015–16 to 2024–25, thereby offering a decadal, sector-specific complement to the extant literature.

The remainder of the paper is organised as follows. Section 2 reviews the relevant literature and identifies the research gap. Sections 3 and 4 state the objectives and hypotheses of the study. Section 5 describes the research methodology. Section 6 presents the trend, descriptive, and inferential (ANOVA) results, supported by tables and figures. Section 7 discusses the findings in light of the reviewed literature and relevant theoretical perspectives. Sections 8 and 9 conclude with policy and managerial implications, and Section 10 notes the limitations of the study and avenues for future research.

Review of Literature

A substantial and rapidly growing body of research has examined the design, compliance behaviour, and consequences of India's mandatory CSR regime. To keep the review current, this section is confined to studies published between 2019 and 2025 — spanning the period during which the mandate matured, was amended, and was stress-tested by the COVID-19 pandemic — and is presented in reverse chronological order, from the most recent study to the earliest.

Harshitha x (2026) analysed CSR expenditure trends in India at the national, state, and district levels after the implementation of the companies act, 2013. The study identified that CSR spending has significantly increased, with education and healthcare receiving the highest share of funds. However, CSR investments continue concentrated in industrialised states and metropolitan regions, while underdeveloped districts receive limited support. The study recommended better allocation of CSR funds, alignment with the sustainable development goals (SDGS), and stronger public–private partnerships to ensure balanced regional development.

Ujjwal Puri Goswami & Dr. Vimal Kumar (2025) examined CSR spending patterns in India over the last three financial years and found that companies have maintained consistent compliance with regulatory CSR requirements. However, the study highlighted that CSR initiatives have shown limited innovation and diversification. It suggested that companies should move beyond mere compliance and focus on impact-driven CSR strategies through partnerships aligned with national development goals for achieving inclusive and sustainable development.

Bose, Clarkson and Richardson (2024) examined the value-relevance of CSR expenditure by distinguishing firms that spent voluntarily before the mandate from those that were compelled to spend only after it took effect. They found that the valuation premium the market had attached to voluntary CSR spending weakened substantially once spending became mandatory, and that the market valued a forced spender's CSR outlay less than that of a voluntary spender, consistent with mandatory CSR being perceived partly as a form of corporate taxation rather than a genuine strategic signal.

Bhagawan and Mukhopadhyay (2024) investigated whether mandatory CSR expenditure affects firm value using a sample of Indian firms subject to Section 135, and reported that the relationship between mandated CSR spending and firm value is more nuanced than a simple compliance cost, varying with the extent to which firms exceed or merely meet the statutory threshold. Khatoon and Paswan (2024), focusing specifically on the pharmaceutical sector, analysed CSR spending patterns of seven BSE-listed pharmaceutical companies over 2015–16 to 2021–22 and reported that higher CSR expenditure was associated with lower Return on Capital Employed in firms such as Abbott India and Divi's Laboratories, pointing to a short-run trade-off between CSR outlay and profitability in this industry.

Raibagkar (2023) constructed a CSR Spend-to-Obligation Index for the thirty BSE Sensex companies over six financial years from 2014–15 and found that, while headline compliance with the two percent norm was high, the quality and strategic direction of CSR expenditure varied considerably across firms, echoing concerns that statutory compliance does not automatically translate into effective social outcomes. Using a longer window spanning the pre- and post-pandemic years, Panwar, Pandey, Suddaby and Vidal (2023) examined whether India's CSR mandate enhanced or diminished firm value and found that the effect was contingent on firms' pre-mandate CSR orientation and on broader institutional conditions, reinforcing the view that a uniform statutory rule can generate heterogeneous firm-level outcomes.

Hasan, Singh and Kashiramka (2022) conducted an industry-wise analysis of the relationship between CSR disclosure and firm performance among Indian firms and found that the strength and direction of the relationship differed markedly across industries, with sectors directly touching public welfare — including healthcare-linked industries — showing distinctive patterns relative to manufacturing and services. Sharma and Aggarwal (2022), using a t-test, one-way ANOVA, and fixed-effect panel regression on 153 BSE-500 non-financial companies for 2015–2019, reported that mandatory CSR expenditure negatively affected corporate profitability in the short run, and recommended that CSR activities be more closely integrated with firms' existing operational capabilities.

Garg and Agarwal (2022) examined how the CSR regime evolved across the pre-COVID-19 and COVID-19 periods and documented substantial regulatory recalibration — including the eligibility of COVID-19 relief spending as CSR and the permitted carry-forward of excess expenditure — that reshaped firms' short-run CSR allocation decisions. In the pharmaceutical sector specifically, Ghewari and Pawar (2022) used primary survey data from pharmaceutical-company employees and found that CSR activity was positively associated with corporate image, employee satisfaction, and organisational effectiveness, underscoring the strategic rather than purely compliance-driven value of CSR for pharmaceutical firms. Using a longer panel of NIFTY 100 firms from 2009–10 to 2018–19, Gupta and Chakradhar (2022) showed that the transition from voluntary to mandatory CSR significantly increased CSR expenditure and strengthened managerial commitment, but also tied CSR spending more closely to corporate profitability post-mandate — a finding with direct relevance to the profitability-linked variation observed in the present sample.

Aswani, Chidambaran and Hasan (2021), examining a broad sample of large, profitable Indian firms subject to the mandate, found that mandatory CSR spending was, on average, value-decreasing for shareholders, with the effect varying systematically across industries — firms in the fast-moving consumer goods sector benefited relatively more, while high capital-expenditure firms were more adversely affected — leading the authors to characterise the uniform two percent formula as a sub-optimal, one-size-fits-all policy. Somewhat earlier, but still within the post-mandate consolidation period, Gatti, Vishwanath, Seele and Cottier (2019) examined the theoretical and managerial implications of the mandate and concluded that it represents a globally significant model of co-regulated, legally enforceable CSR, even as firms continued to struggle with identifying high-impact projects and measuring social outcomes.

Table 1: Summary of Select Empirical Studies on Mandatory CSR in India (2019–2025)

Study (Author / year)	focus	Key finding
Harshitha x (2026)	Analysed post-Companies Act, 2013 CSR expenditure trends in India.	CSR spending increased, but remained concentrated in developed regions, creating regional disparities.
Ujjwal Puri Goswami& Dr. Vimal Kumar (2025)	Analysed CSR spending patterns and compliance in India.	CSR spending remained consistent, but initiatives lacked innovation and strategic impact.
Bose, Clarkson & Richardson (2024)	Value-relevance of CSR spend, voluntary vs. forced spenders	Valuation premium of CSR weakens once spending becomes mandatory
Bhagawan & Mukhopadhyay (2024)	Mandatory CSR expenditure and firm value, Indian firms	Effect on firm value is nuanced, varying with spend relative to the statutory threshold.
Khatoon & Paswan (2024)	Seven BSE-listed pharmaceutical companies, 2015–16 to 2021–22	Higher CSR expenditure associated with lower ROCE in select pharma firms
Raibagkar (2023)	CSR Spend-to-Obligation Index, 30 BSE Sensex firms	High headline compliance, but CSR quality and direction vary across firms
Panwar, Pandey, Suddaby & Vidal (2023)	Firm value effects of India's CSR mandate	Effect on firm value contingent on pre-mandate CSR orientation and institutional context
Hasan, Singh & Kashiramka (2022)	Industry-wise CSR disclosure–performance analysis, Indian firms	Relationship between CSR disclosure and performance differs sharply by industry
Sharma & Aggarwal (2022)	153 BSE-500 non-financial firms, 2015–2019	Mandatory CSR expenditure negatively affects short-run profitability
Garg & Agarwal (2022)	CSR regime, pre-COVID-19 and COVID-19 periods	COVID-linked amendments reshaped short-run CSR allocation decisions
Ghewari& Pawar (2022)	Pharmaceutical-sector employees (primary data)	CSR positively associated with image, satisfaction, and effectiveness
Gupta & Chakradhar (2022)	NIFTY 100 firms, 2009–10 to 2018–19	Mandate increased CSR expenditure and linked it more closely to profitability
Aswani, Chidambaran& Hasan (2021)	Large, profitable Indian firms subject to the mandate	Mandatory CSR is value-decreasing on average; effects vary by industry
Gatti, Vishwanath, Seele & Cottier (2019)	Theoretical/managerial implications of the mandate	Landmark co-regulated, enforceable CSR model; project-impact measurement remains difficult

Source: Compiled by the author from the reviewed literature.

Research Gap

Three gaps arise from this review. First, even the most recent firm-value and firm-performance studies (Bose et al., 2024; Bhagawan & Mukhopadhyay, 2024; Panwar et al., 2023; Aswani et al., 2021) are based on broad, cross-sectoral samples and report average or industry-wise effects rather than firm-by-firm comparisons within a single, homogeneous industry. Second, sector-specific evidence for pharmaceuticals remains comparatively thin and is weighted towards financial-performance linkages over a shorter window (Khatoon & Paswan, 2024, cover seven years) or towards perception-based employee surveys (Ghewari& Pawar, 2022) rather than a systematic, multi-year comparison of actual CSR expenditure levels across leading firms. Third, no reviewed study extends a firm-level pharmaceutical CSR expenditure comparison across the complete first decade of the mandate, from FY2015–16 through the COVID-19 shock and into the FY2024–25 post-pandemic recovery. The present study addresses these three gaps by constructing and statistically analysing a ten-year (FY2015–16 to FY2024–25) CSR expenditure panel for five leading pharmaceutical companies.

Objectives of the Study

- To analyse the trend and growth pattern of CSR expenditure among the selected Indian pharmaceutical companies over the ten financial years from 2015–16 to 2024–25.
- To examine the extent of dispersion, consistency, and distributional characteristics of CSR expenditure across the selected companies using descriptive statistical measures.
- To assess the differences in mean CSR expenditure among the selected pharmaceutical companies during the study period.

Hypotheses of the Study

H₀: There is no statistically significant difference in the mean CSR expenditure among the selected pharmaceutical companies during the study period.

H₁: There is a statistically significant difference in the mean CSR expenditure among the selected pharmaceutical companies during the study period.

Research Methodology

Research Design

The study adopts a descriptive-analytical, ex post facto research design based entirely on secondary data, and is quantitative in nature.

Population, Sample, and Sampling Technique

The population comprises listed pharmaceutical companies operating in India. A sample of five companies was selected using purposive (judgemental) sampling on the basis of market capitalisation: Sun Pharmaceutical Industries Ltd, Divi's Laboratories Ltd, Torrent Pharmaceuticals Ltd, Cipla Ltd, and Dr. Reddy's Laboratories Ltd. These firms collectively represent a substantial share of the listed Indian pharmaceutical sector by market value and are consistently subject to the CSR mandate under Section 135.

Data Source and Period of the Study

The study relies exclusively on secondary data extracted from the audited annual reports and CSR disclosure statements published by the sample companies. The analysis covers ten financial years, from 2015–16 to 2024–25, corresponding to the first full decade of operation of the mandatory CSR regime.

Variable and Unit of Measurement

The dependent variable of interest is annual CSR expenditure, measured in ₹ crore, as reported by each company in compliance with Section 135 read with Schedule VII of the Companies Act, 2013.

Statistical Tools

Descriptive statistics — mean, median, standard deviation, sample variance, skewness, and kurtosis — were computed to characterise the level and distributional shape of CSR expenditure for each firm. One-way ANOVA was applied to test the equality of mean CSR expenditure across the five firms at the 5 percent level of significance, with the calculated F-statistic compared against the critical F-value and the associated p-value interpreted against $\alpha = 0.05$.

Results

Trend in CSR Expenditure, FY 2015–16 to FY 2024–25

Table 2: Year-wise CSR Expenditure of Selected Pharmaceutical Companies (₹ in Crore)

Year	Sun Pharmaceutical Industries Ltd	Divi's Laboratories Ltd	Torrent Pharmaceuticals Ltd	Cipla Ltd	Dr. Reddy's Laboratories Ltd
2015-16	11.65	7.64	16.91	20.48	81.29
2016-17	2.41	15.96	27.55	28.25	42.66
2017-18	2.70	16.63	27.70	0.00	32.81
2018-19	7.88	27.97	26.45	33.41	26.20
2019-20	4.39	50.14	18.07	36.31	27.53
2020-21	26.30	33.76	25.22	42.79	36.08
2021-22	19.06	43.83	6.15	53.25	35.25

2022-23	28.35	41.28	5.37	62.03	41.68
2023-24	44.79	32.43	22.45	57.74	56.94
2024-25	50.83	49.19	35.03	75.32	77.44

Source: Compiled by the author from the annual reports and CSR disclosure statements of the respective companies, FY2015–16 to FY2024–25.

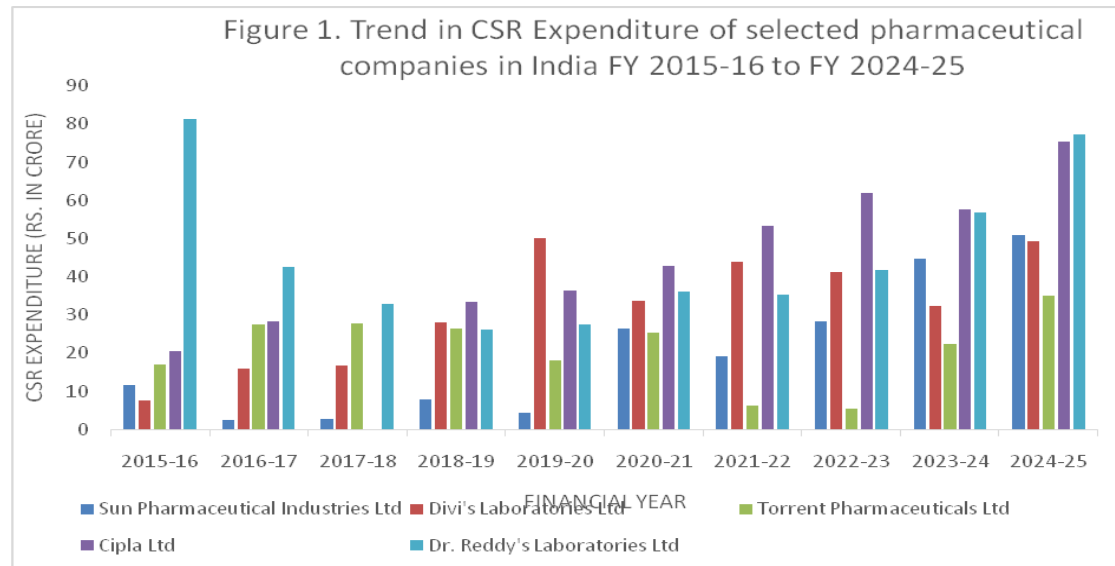


Figure 1: Trend in CSR Expenditure of Selected Pharmaceutical Companies in India, FY 2015–16 to FY 2024–25

Table 2 and Figure 1 show that CSR expenditure rose for every sample firm over the study period, although the trajectories differed markedly. Sun Pharmaceutical Industries Ltd began from a low base falling from ₹11.65 crore in 2015–16 to ₹2.41 crore in 2016–17 and remaining below ₹10 crore until 2019–20 — before rising sharply and consistently from 2020–21 onward to reach ₹50.83 crore in 2024–25. Divi's Laboratories Ltd exhibited a broadly upward and comparatively steady path, moving from ₹7.64 crore to ₹49.19 crore, with a temporary peak of ₹50.14 crore in 2019–20. Torrent Pharmaceuticals Ltd was the least stable performer, rising to ₹27.70 crore by 2017–18, falling to a low of ₹5.37 crore in 2022–23, and recovering to ₹35.03 crore by 2024–25.

Cipla Ltd recorded a single anomalous year of nil reported CSR expenditure in 2017–18 — plausibly reflecting deferment or the utilisation of carried-forward CSR provisions — before rising almost monotonically to ₹75.32 crore, the second-highest terminal value in the sample. Dr. Reddy's Laboratories Ltd began the period with the sample's highest single-year expenditure (₹81.29 crore in 2015–16), declined through the middle years of the decade, and then re-accelerated from 2020–21 to reach ₹77.44 crore in 2024–25. Overall, the post-2020–21 acceleration common to all five firms coincides with the tightening of CSR disclosure and impact-assessment norms and with the heightened public-health salience of the pharmaceutical sector during and after the COVID-19 pandemic.

• Descriptive Statistics

Table 3: Descriptive Statistics of CSR Expenditure of Selected Pharmaceutical Companies, FY 2015–16 to FY 2024–25 (₹ in Crore)

Statistic	Sun Pharmaceutical Industries Ltd	Divi's Laboratories Ltd	Torrent Pharmaceuticals Ltd	Cipla Ltd	Dr. Reddy's Laboratories Ltd
Mean	19.836	31.883	21.090	40.958	45.788
Median	15.356	33.097	23.833	39.550	38.881
Standard Deviation	17.461	14.746	9.570	22.106	19.731

Sample Variance	304.874	217.436	91.582	488.656	389.327
Kurtosis	-0.635	-1.140	-0.338	-0.031	-0.141
Skewness	0.781	-0.350	-0.606	-0.300	1.082
Minimum	2.410	7.640	5.371	0.000	26.200
Maximum	50.830	50.139	35.030	75.320	81.290

Source: Author's computation based on data reported in Table 2.

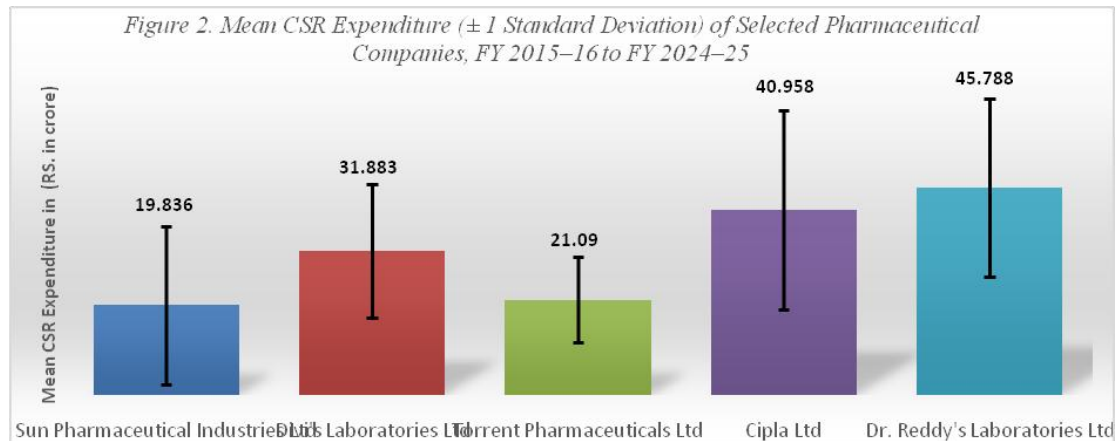


Figure 2: Mean CSR Expenditure (± 1 Standard Deviation) of Selected Pharmaceutical Companies, FY 2015–16 to FY 2024–25

Dr. Reddy's Laboratories Ltd recorded the highest mean CSR expenditure (₹45.79 crore), followed by Cipla Ltd (₹40.96 crore), Divi's Laboratories Ltd (₹31.88 crore), Torrent Pharmaceuticals Ltd (₹21.09 crore), and Sun Pharmaceutical Industries Ltd (₹19.84 crore). Cipla Ltd exhibited the highest standard deviation (₹22.11 crore) and variance (488.66), indicating the widest year-to-year fluctuation in the sample, whereas Torrent Pharmaceuticals Ltd recorded the lowest standard deviation (₹9.57 crore) and variance (91.58), reflecting a comparatively narrow, though still fluctuating, spending range. The positive skewness observed for Sun Pharmaceutical Industries Ltd (0.781) and Dr. Reddy's Laboratories Ltd (1.082) indicates that a small number of exceptionally high-spending years pulled their respective means above their medians, while the negative skewness for Divi's Laboratories Ltd (−0.350), Torrent Pharmaceuticals Ltd (−0.606), and Cipla Ltd (−0.300) reflects the opposite pattern. Negative kurtosis across all five firms indicates platykurtic (flatter-than-normal) distributions, suggesting an absence of extreme, single-year outliers beyond the general variability already captured by the standard deviation.

• **Test of Hypothesis: One-Way ANOVA**

Table 4: One-Way ANOVA — CSR Expenditure of Selected Pharmaceutical Companies, FY 2015–16 to FY 2024–25

Source of Variation	Sum of Squares (SS)	df	Mean Square (MS)	F	P-value	F critical
Between Groups	5373.41	4	1343.35	4.502	0.0038	2.579
Within Groups	13426.9	45	298.375			
Total	18800.3	49				

Source: Author's computation based on data reported in Table 2. Significant at the 5 percent level ($\alpha = 0.05$).

The calculated F-statistic of 4.502 exceeds the critical F-value of 2.579 ($df_1 = 4$, $df_2 = 45$), and the associated p-value of 0.0038 is well below the 5 percent level of significance. The null hypothesis (H_0) — that the mean CSR expenditure does not differ across the selected pharmaceutical companies — is therefore rejected, and the alternative hypothesis (H_1) is accepted. This confirms that mean CSR expenditure varies significantly across the sample firms over the study period, consistent with the descriptive evidence of divergent spending levels reported in Table 3.

Discussion of Findings

The findings extend the literature reviewed in Section 2 in three respects. First, consistent with Gupta and Chakradhar (2022), aggregate CSR expenditure rose across the sample over the decade, supporting the view that the statutory mandate has been effective in raising the overall level of corporate social investment rather than merely formalising pre-existing voluntary spending. Second, the statistically significant inter-firm variation documented here — despite all five firms operating under an identical 2 percent statutory formula — indicates that the mandate has not produced convergence in CSR spending levels. This is consistent with Gatti et al. (2019) and Aswani, Chidambaran and Hasan (2021), who similarly find that firm-specific and industry-specific characteristics condition the practical effect of a uniform statutory rule.

Third, the observed variation is plausibly linked to differences in profitability, financial slack, and strategic orientation rather than to differences in regulatory obligation per se, since the 2 percent formula is itself profit-linked. Firms with larger and more stable profit bases — Dr. Reddy's Laboratories Ltd and Cipla Ltd in this sample — were able to sustain higher absolute CSR expenditure, a pattern broadly consistent with slack-resource theory, which holds that firms with greater financial slack are both more able and more willing to commit resources to discretionary social investment. This is consistent with Sharma and Aggarwal (2022) and Hasan, Singh and Kashiramka (2022), who equally report that the financial consequences and industry patterning of mandatory CSR spending are far from uniform across Indian firms. The single-year nil expenditure recorded by Cipla Ltd in 2017–18, followed by an immediate and sustained recovery, illustrates how short-term profitability shocks or provisioning adjustments can produce transient departures from an otherwise upward trend without altering the longer-run trajectory, a pattern of regulatory and pandemic-linked recalibration also noted by Garg and Agarwal (2022).

From a public-health perspective, consistent with Ghewari and Pawar (2022), the acceleration in CSR spending observed across all five firms after 2020–21 is consistent with pharmaceutical companies deploying CSR as a strategic instrument for reinforcing corporate legitimacy and stakeholder trust during a period of heightened scrutiny of the healthcare sector, rather than treating CSR expenditure purely as a compliance cost.

Conclusion

This study aimed to analyze and statistically compare the CSR expenditure of five leading Indian pharmaceutical companies over the first full decade of the mandatory CSR regime. The evidence shows that while all sample firms increased their CSR expenditure over FY2015–16 to FY2024–25, the level, consistency, and distributional shape of that expenditure differed considerably. Dr. Reddy's Laboratories Ltd and Cipla Ltd emerged as the leading CSR spenders in absolute terms, Divi's Laboratories Ltd maintained a comparatively steady upward path, Sun Pharmaceutical Industries Ltd exhibited the sharpest late-period acceleration, and Torrent Pharmaceuticals Ltd displayed the most volatile trajectory. The one-way ANOVA confirms that this inter-firm variation is statistically significant ($F = 4.502$, $p = 0.0038$), leading to rejection of the null hypothesis of equality of means.

These findings indicate that a uniform statutory CSR formula does not, by itself, produce uniform CSR outcomes: firm-level profitability, financial strength, and strategic priorities continue to shape how much individual companies actually spend, even within a single, closely regulated industry. CSR expenditure in the Indian pharmaceutical sector should therefore be understood as a statutory floor that interacts with, rather than substitutes for, firm-specific financial capacity and managerial commitment.

Managerial and Policy Implications

For CSR committees and boards, the results suggest value in benchmarking CSR expenditure not only against the statutory 2 percent floor but also against sector peers of comparable size, to avoid systematic under-investment relative to financially comparable competitors. For regulators, the persistence of significant inter-firm variation a decade after the mandate took effect suggests that impact-assessment and disclosure requirements — rather than the spending formula itself — may be the more effective lever for narrowing gaps in the quality and consistency of CSR delivery. For institutional investors and rating agencies incorporating Environmental, Social, and Governance (ESG) considerations into pharmaceutical-sector analysis, CSR expenditure trends of the kind documented here offer a quantifiable, comparable input alongside qualitative ESG disclosures.

Limitations of the Study and Scope for Future Research

The study is subject to several limitations. First, the sample is restricted to five purposively selected, market-capitalisation-ranked pharmaceutical companies and does not extend to mid-cap or small-cap firms, limiting generalisability across the full coverage of the Indian pharmaceutical industry. Second, the analysis relies on reported CSR expenditure figures without independently verifying the underlying social impact of that spending; expenditure is a necessary but not sufficient indicator of CSR effectiveness. Third, the one-way ANOVA identifies the presence of significant inter-firm variation but does not, by itself, isolate the specific firm-level determinants — such as profitability, ownership structure, or board composition — responsible for that variation. Future research could extend this analysis through panel-data regression techniques that explicitly model CSR expenditure as a function of profitability, firm size, and governance variables, and could broaden the sample to include mid-cap pharmaceutical firms and cross-country comparisons with other emerging markets that have since adopted mandatory CSR-style provisions

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