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Corporate Social Responsibility Funding and Its Impact on India's Sustainable Development: Using the Poverty Score as a Moderator

Rahul Singh Gautam [1], Venkata Mrudula Bhimavarapu [2,*], Shailesh Rastogi [1], Jyoti Mehndiratta Kappal [2], Hitesh Patole [3] and Aman Pushp [1]

[1] Symbiosis Institute of Business Management, Symbiosis International (Deemed University), Pune 412115, India
[2] Symbiosis School of Banking and Finance, Symbiosis International (Deemed University), Pune 412115, India
[3] Symbiosis School of Culinary Arts, Symbiosis International (Deemed University), Pune 412115, India
* Correspondence: mrudulabhimavarapu@gmail.com

Abstract: This study investigates the impact of corporate social responsibility (CSR) funding in the education sector and the environment and how it affects India's sustainable development. This study was conducted using secondary data and the data were collected from 28 Indian states and three union territories for the four fiscal years 2018 to 2021. This study examines the hypothesis using the generalized method of moments (GMM). As a result, it is found that overall CSR funding positively contributes to India's sustainable development. Additionally, this study finds that CSR funding in education and the environment supports India's sustainable development. It is also observed that, under the interaction effect of poverty (poverty score), CSR funding (total) and CSR funding on education positively affect sustainable growth. However, CSR funding for environmental activities does not significantly influence India's FD under the moderation of poverty score. These factors are essential for India's sustainable development and poverty reduction. Investing CSR funds in rural development, education, the environment, health, and other areas supporting India's sustainable development leads to impressive economic growth and reduces poverty. Hence, it is attributed that CSR funding plays a vital role in India's sustainable development. Future research can be carried out on CSR policies and funding using different variables and periods.

Keywords: CSR; education and environment; SDG; poverty; panel data

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1. Introduction

This study investigates the effects of corporate social responsibility (CSR) funding donated to India's sustainable development (SD), including CSR expenditures committed to the environment, rural development, health, and education. Kings, businesses, and landowners in ancient India recognised the value and significance of social duty. Everyone thinks that, the more you give, the more you receive (Xia et al. 2018). Every person's life and society will be enhanced by the collective growth of the economy (Narwal and Sharma 2008). Every religious scripture has the idea of Dharma and Daana in various forms. These religious beliefs encouraged the country's men to support everyone and help the poor. Even when things were tough, every working-class family gave their all to the community (Hamann 2003). In order to "give back to society", affluent businessmen distribute money and gold. Indians have long practised and valued social responsibility, even in pre-written periods (Sharma 2009).

Besides their economic endeavours, Indian business people have traditionally practised charity and philanthropy. The nation is renowned for its rich cultural legacy and ability to embrace diversity. Every youngster receives this social responsibility education at home (Cordeiro et al. 2018). Through the years, industrialists and traders from across the

Indian subcontinent have made charitable contributions when they were able (Arora and Puranik 2004; Nagaich and Sharma 2014). With all of their culture and heritage built on strong religious feelings that encourage charity and sustainable societal progress, people in the county provide valuable contributions to all types of social uplift and environmental improvement efforts (Avotra et al. 2021). The nation's citizens engage in CSR initiatives and put their all into attaining their objectives because they believe that what has been stolen from society must be returned to it. After the fight for freedom, many individuals adopted the Gandhian trusteeship ideology. A strong feeling of community fosters the giving behaviour that was so common in Indian civilisation. Indians have contributed to rural development, environmental protection, and education (Yadav 2020). However, progressive individuals in pre- and post-independence eras encouraged and contributed to the country's sanitary infrastructure and women's emancipation (Fatma and Rahman 2016; Ghanbarpour and Gustafsson 2022).

The 2013 Companies Act mandates that, for the first time, private corporations must join those in the public sector in paying yearly contributions for corporate social responsibility (CSR). According to Section 135, every business with a net worth over Rs 500 crore, sales over Rs 1 billion, or net profit over Rs 5 crore must contribute at least 2% of its yearly earnings (adjusted over three years) to charitable organisations. In addition, it is also required to set up a CSR committee to supervise the donations (Sharma 2009; Zaman et al. 2022).

India is one of the largest emerging economies. The people living in India primarily connect to rural regions. Hence, the poverty level in India is substantial. Nowadays, India's corporate world focuses on sustainable development through CSR funding (Sharma 2009; Yadav 2020). There has not been much research on the influence of corporate social responsibility (CSR) funding donated to India's sustainable development, including CSR contributions to the country's rural development, education, and environment systems. Corporate social responsibility funding provides critical development services like education, environment, and rural development, helping India's economic growth (Abbas et al. 2019). CSR funding is essential for India's SD, education, health, and rural development. The current study investigates India's total CSR funds investment and CSR funds invested in education and environment sectors and how they affect long-term growth and poverty reduction in India. We used panel data analysis (PDA) to investigate the impact of CSR funding on sustainable development (SD) and poverty reduction in India. This study used specific variables and period of data that affect India's sustainable development. This specification justifies the novelty of this research as there is a gap in this area, and a critical need for scenario studies is the motivating force behind our research.

Compared with normative economics or classical regression analysis, panel data analysis (PDA) more accurately captures the fundamental elements of CSR and the funds allocated to rural development, health, and education in India (Hsiao 2007; Kanoujiya et al. 2022; Baltagi and Baltagi 2008). Consequently, panel data analysis is selected as the model's foundational element. This investigation aims to learn more about CSR funding and how it affects India's long-term development. By using particular criteria related to the CSR funds spent, it seeks to identify CSR expenditures in India's education and environment sectors in an objective manner. This research included several criteria from earlier studies and looked at secondary data from 28 states and 3 union territories from 2018 to 2021.

The scarcity of research on this topic and the urgent need for a scenario study assessment motivates this endeavour. We decided to look at the role of CSR funds and their impact on India's long-term development and poverty alleviation. By reducing poverty, CSR may benefit India's education system, health, environment, and sustainable development. CSR funds invested in various areas is critical to Indian rural industries, health, and the environment, as they contribute to India's economic growth and poverty alleviation.

This study is organised as follows. The Section 1 presents the introduction and the Section 2 presents the literature review. The Section 3 provides the study's data and methods. The Section 4 discusses the result, and the Sections 5 and 6 provide the discussion and conclusion of this study, respectively.

2. Review of Literature and Hypothesis Development

In India, studies on the operation and performance of CSR funds are scarce. This section highlights CSR researchers' results and implications for India's long-term growth, research articles, and economic analyst comments. The first is CSR and sustainable development, the second is CSR and education, and the third is CSR and environment, in order to explore how much research has been done and what research can be done in this study as per the literature.

2.1. CSR and Sustainable Development (SD)

The Government of India's mandated CSR regulation was the first significant move in this approach. In the future, however, the investments made using CSR funding were skewed and lacked the comprehensive perspective that the government had in mind (Chatterjee and Mitra 2017; Herrmann 2004). The obvious issue is, how might investments be focused on sustainable development? A first-hand investigation into the matter revealed several factors that are very significant in this regard: corporations invest in areas to have a better public profile; they invest in the regions that are in line with government schemes and plans to gain political mileage; corporations invest in areas where less planning is necessary (health and hygiene; for example, supplying medical supplies to hospitals in the region in which they are operating); and corporations invest in areas where they can earn political mileage (Ebner and Baumgartner 2006; Alvarado-Herrera et al. 2017).

In contrast to the 1950s and 1960s (when the CSR framework was first developed), SD was not widely used until the 1980s. Bowen offered one of the early definitions of CSR in 1953, describing it as a duty to seek policies, make decisions, and follow routes of action that are compatible with the aims and values of society (Kanji and Agrawal 2020; Douglas et al. 2004). However, CSR was first used more frequently than social responsibility. According to social responsibility, businesses have duties beyond those imposed by the law and economics (Bhagwat 2011; Manohar 2019). According to İyigün (2015), social responsibility consists of four components: society's expectations of a business in terms of its performance in the economic, legal, ethical, and discretionary arenas. Companies must decide which level of social responsibility to prioritise (İyigün 2015). The CSR categories under the SDGs and the fact that CSR categories are included as SDGs make up a holistic agenda for the entire globe. CSR and the SDGs benefit from the suggested framework, which also addresses current and future demands and offers a better roadmap with more quantifiable results (Fallah Shayan et al. 2022; Li et al. 2022).

2.2. CSR and Education

CSR in education has a role in reducing the skills gap through extensive experimentation and learning-by-doing along the route (Chopra and Marriya 2013). The impacted people, businesses, and society will probably benefit from this process. Education is also the primary area for CSR contribution when considering CSR spending from the viewpoint of a particular industry (Singh and Kaur 2016). In the research conducted by Futures cape, all information technology (IT) organisations were examined. These companies have participated in initiatives as education partners, providing resources such as money and staff volunteer experience (Verma and Chauhan 2007). For their CSR outreach, around half of the companies polled held contests. For the most part, they concentrated on computer education, then business education, which, unexpectedly, comprised more projects and enterprises. The CSR portfolio included initiatives for adult literacy, job training, and financial help (Shah 2012).

Over the years, CSR investment in education has changed to produce more nuanced and detailed results. Interventions driven by outcomes have replaced philanthropic input-driven contributions (Singh 2016). The relative intricacy of the model, represented in the donor's capacity and contextual knowledge, does not directly translate to a timetable. The following principles roughly describe CSR in school funding. However, the specifics of each procedure and expectation may vary (Ibidunni 2013). A CSR donor may support

initiatives throughout this range or have done so in the past and is now selectively funding initiatives that closely align with their intervention objectives and ideological leanings (Sengupta 2017).

Public sector businesses have also made a substantial contribution to education. While their contribution to education has been relatively small, public sector enterprises have invested in various causes, strengthening communities surrounding their remote activities and building more than simply schools (Mishra 2021). Public sector companies, such as Gas Authority of India Limited (GAIL), invest in education as well because they "view it (education) as one of the key pillars through which we can construct a better, fairer, and just society (Revathy 2012)".

2.3. CSR and Environment

In the 18th century, the term SD was first used in the timber business. Only a certain number of trees may be cut at one time to preserve the long-term survival of the tree population. This method ensured that wood would always be accessible without diminishing resources for future generations. The Club of Rome triggered a worldwide controversy with its report Limits to Growth (Kolk and Van Tulder 2010).

A growth strategy for the economy was developed to safeguard the environment and natural resources. The current mission statement for SD that we have today is the resultof this work. The World Commission introduced the ethical concept of SD on Environment and Development in 1987. Sustainable development is defined as meeting present needs without compromising the ability of future generations to satisfy their own (Sharma 2011). Its two main principles are that the world's poorest people's basic needs should come first. That societal structures and technological advancements restrict the environment's capacity to support current and future demands (Grover et al. 2019). Huk and Kurowski (2021) conducted a statistical analysis, including data from 1718 global firms. They observed that the future growth of all economies worldwide is now firmly focused on sustainable development. The effects of economic expansion on the ecology and our planet must be balanced with each other (Zahid et al. 2022a, 2022b).

Every country, developed or developing, market- or centrally controlled, needs to define the objectives of economic and social growth in terms of sustainability. Elkington says that firms should prioritise environmental and social problems and grow their value by maximising profit and performance (Elkington 1998). SD is considered to be a triple-bottom-line model (Matten and Moon 2004).

The absence of original writing extends beyond notions. This tactic also necessitates a methodology that has yet to be shown in the literature. Based on the literature research, the following hypothesis is formed:

H1. *Corporate Social Responsibility funding is significantly affecting sustainable development in India.*

3. Data and Research Methodology

3.1. Data

Figure 1 deceits the strategy adopted for the research study. This study uses secondary data from 28 Indian states and 3 union territories for the financial years 2018 to 2021. The sample is chosen to reflect the Indian economy and to uncover new proof based on recently released data with sufficient observations to provide valid results. The data are retrieved from several sources, including reports from the Ministry of Corporate Affairs (MCA), National Institution for Transforming India, Aayog (NITI Aayog), Reserve Bank of India (RBI), Census of India, and ejalshakti.gov.in. An explanation of the variables and the data sources used is provided in Table 1.

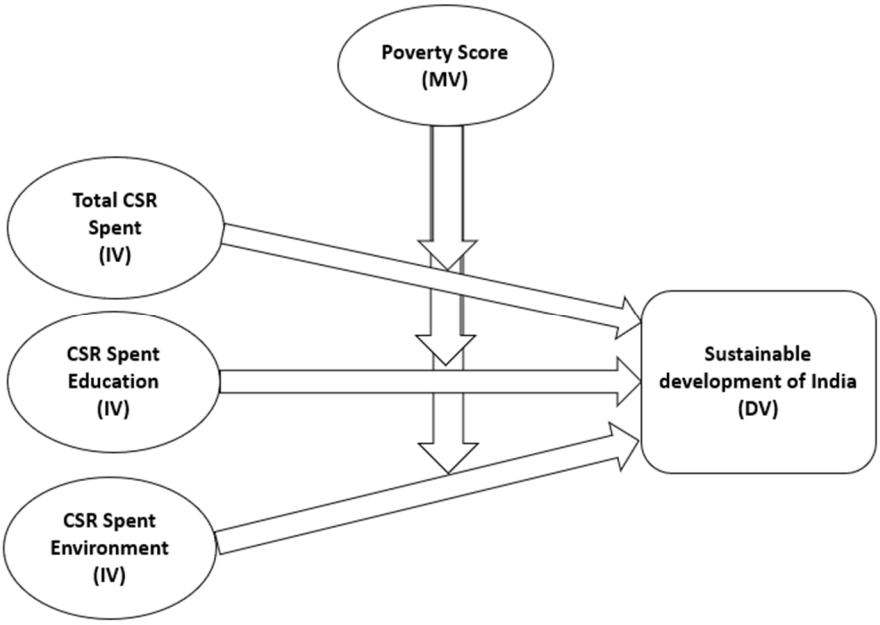

Figure 1. Conceptual model.

Table 1. Variables' definition and source.

SN	Variable	Type	Definition	Source
1	SDG_Ind	DV	The Sustainable Development Goals (SDG India) aims to thoroughly evaluate the nation's social, economic, and environmental problems, as well as those of its states and union territories (UTs).	NITI Aayog (2018)
2	T_CSR	IV	According to the CSR policy, each company that must follow CSR standards must invest 2% of its average net earnings over the preceding three years. This CSR effort will assist India in achieving its sustainable development goals through public–private partnerships. This study uses the overall CSR amount spent on sustainable development as an explanatory variable.	(Mishra 2021; Moon 2007).
3	CSR_edu	IV	CSR amount spent on education is used as an explanatory variable.	(Mishra 2021; Moon 2007).
4	CSR_Env	IV	CSR spent on the environment is used as an explanatory variable.	(Mishra 2021; Moon 2007).
5	IND_PS	MV	In this study, the India poverty score is employed as a moderator.	(SOUTHTRIPURA DISTRICT 2006; Yadav 2018).
6	RP	CV	Numbers of rural populations in Indian states are used in this study as a control variable.	Rural Population (n.d.)

Note: DV is the Sustainable Development Goals (SDGs) and IV shows the independent variables (i.e., T_CSR, CSR_edu, CSR_Env, representing total CSR funds, CSR funds for education, and CSR funds for the environment, respectively. MV is the moderating variable.

3.2. Methodology

This study adopts a quantitative technique using secondary data. As per the data design (includes both cross-section and time dimension), the panel data regression analysis (PDRA) is used to test the framed hypotheses. The PDRA uses the states and UTs as cross-section units and four years as the time dimension (2018–2021). In addition, the PDRA models have advantages over typical cross-sectional or time-series analysis (Hsiao 2007; Kanoujiya et al. 2022; Baltagi and Baltagi 2008). The PDRA models reveal comparatively more information as it has features of both time and cross-sectional units. These models are also less prone to endogeneity problems. Hence, PDRA delivers unbiased results (Hsiao 2007; Kanoujiya et al. 2022; Baltagi and Baltagi 2008). There are six models established (three base models (Models 1, 2, and 3) and three interaction models (Models 4, 5, and 6)) with dynamic PDRA models. The application of dynamic models is justifiable owing to dealing with the endogeneity issue and lag relationship of the dependent variable for long-term insights into sustainable growth. The model specifications are given as follows:

$$SDG\_Ind_{it} = \beta_1 SDG\_Ind_{it\ (-1)} + \beta_2 EV_{it} + \beta_3 ln\_RP_{it} + u_{it} \quad (1)$$

$$SDG\_Ind_{it} = \beta_1 * SDG\_Ind_{it\ (-1)} + \beta_2 dEV_{it} + \beta_3 dIND\_PS_{\ it} + \beta_4 INTR_{it} + \beta_5 ln\_RP_{it} + u_{it} \quad (2)$$

Models 1, 2, and 3 are based on Equation (1) and Models 4, 5, and 6 correspond to Equation (2). Here, SDG_Ind is the dependent variable. 'EV' is the explanatory variable representing T_CSR, CSR_edu, and CSR_Env. Here, T_CSR indicates the total CSR funding in the Indian states. CSR_edu and CSR_Env are the CSR funds spent on education and the environment, respectively, in the Indian states. i_dT_CSR_dIND_PS, i_dCSR_edu_dIND_PS, and i_dCSR_Env_dIND_PS (i.e., i_dT_CSRXdIND_PS, i_dCSR_eduXdIND_PS, and i_dCSR_EnvXdIND_PS) are three interaction variables (INTR) with dIND_PS (poverty score) as the moderator. In addition, ln_RP (natural log value of rural population) is included as a control variable for good fit of the model to handle omitted variable bias. 'd' prefixed in a variable indicates that the variable uses demean values to deal with multicollinearity and extreme values. 'it' is the incation of panel data, with 'i' for cross-section (states or UTs) and 't' for time (year). 'u_{it}' is residual, which equals the sum of regular error (v_{it}) and individual effect (u_{it}).

3.3. Variables

Four types of variables (dependent, explanatory, interaction, and control variables) are utilised for this study. India Sustainable Development Goal (SDG_Ind) is the dependent variable proxied by the SDG India Index. As per NITI Aayog (2018), the Sustainable Development Goals (SDG) India Index aims to comprehensively assess the country's social, economic, and environmental state and those of its states and UTs. CSR is the primary explanatory variable, with three variables (i.e., T_CSR, CSR_edu, and CSR_Env). The variable 'T_CSR' is the total CSR spending in INR on sustainable development in India (Mishra 2021; Moon 2007). The variable 'CSR_edu' is the amount of CSR spending in INR on education in India (Mishra 2021; Moon 2007). The variable 'CSR_Env' is the amount of CSR spending in INR on the environment in India (Mishra 2021; Moon 2007). A moderating (interaction) variable (poverty score (IND_PS)) is also included to observe the association of CSR and SDG under the moderating role of poverty score. The variable 'IND_PS' is the proportion of poverty score in a specific nation, region, or geographic area (Nagaich and Sharma 2014). Rural population (RP) is the control variable to observe CSR's sole effect on SDG because the Indian population might influence SDG. In addition, introducing the control variable makes the model a good fit. The rural population is an influencing factor for sustainable development (Kolk and Van Tulder 2010). Hence, the inclusion of 'RP' as a control variable also overcomes the omitted variable bias (Baltagi and Baltagi 2008).

4. Results

4.1. Statistics Summary

In Table 2, SDG_Ind, with a mean value of 64.30, is slightly inclined towards Max. This result indicates, on average, that sustainable growth in India is more than moderate. The slight standard deviation (SD) value shows that sample states do not vary much, and hence have similar statuses. T_CSR, CSR_edu and CSR_Env have mean values of 385.41, 167.27, and 31.56, respectively. However, both values are somewhat down towards Min. Hence, this indicates that, on average, CSR spending is substantially low in India. The notably high value of SD signifies that states and UTs vary in CSR spending. IND_PS has an average rate of 48.65, slightly closer to Max. Hence, the poverty score in India is more than at the moderate level. 'RP' has a mean value of 3.02. The lower SD of IND_PS and RP shows lesser variations between states regarding poverty score and rural population.

Table 2. Descriptive statistics.

Variables	Mean	SD	Min	Max
SDG_Ind	64.30645	6.173797	50	75
T_CSR	385.4104	610.6643	0.11	3336.14
CSR_edu	167.272	291.4414	0	1611.6
CSR_Env	31.56145	49.97927	0	283.11
IND_PS	48.6504	20.66298	0.71	76
RP	3.0207	3.6007	252,204	1.7008

Note: Mean, SD, Min, and Max are the mean value, standard deviation, minimum, and maximum, respectively.

4.2. Multicollinearity and Endogeneity

In Table 3, it can be observed that many pairs of variables have a significant correlation. The maximum value of the significant correlation coefficient (pairs with different variables) is 0.7096 between the interaction terms (i.e., i_dT_CSR_dIND_PS, i_dCSR_edu_dIND_PS, and i_dCSR_Env_dIND_PS). It can also be observed from the correlation matrix that there is no correlation coefficient with a value of more than 0.800. Hence, multicollinearity does not exist between the variables (Wooldridge 2015; Baltagi and Baltagi 2008).

Table 3. Correlation matrix.

Variables	T_CSR	CSR_edu	CSR_Env	dT_CSR	dCSR_edu	dCSR_Env	dIND_PS	i_dCSR_dIND_PS	i_dCSR_edu_dIND_PS	i_dT_CSR_Env_dIND_PS	ln_RP
T_CSR	1.0000										
CSR_edu	0.9889 *	1.0000									
CSR_Env	0.8193 *	0.7946 *	1.0000								
dT_CSR	1.0000 *	0.9889 *	0.8193 *	1.0000							
dCSR_edu	0.9889 *	1.0000 *	0.7946 *	0.9889 *	1.0000						
dCSR_Env	0.8193 *	0.7946 *	1.0000 *	0.8193 *	0.7946 *	1.0000					
dIND_PS	−0.0492	−0.0287	−0.0234	−0.0492	−0.0287	−0.0287	1.0000				
i_dT_CSR_dIND_PS	−0.1404	−0.1423	−0.0447	−0.1404	−0.1423	−0.0447	0.0170	1.0000			
i_dCSR_edu_dIND_PS	−0.1461	−0.1518	−0.0357	−0.1461	−0.1518	−0.0357	−0.0051	0.9887 *	1.0000		
i_dCSR_Env_dIND_PS	−0.0478	−0.0371	0.0304	−0.0478	−0.0371	0.0304	0.0029	0.8785 *	0.8357 *	1.0000	
ln_RP	0.4896 *	0.4509 *	0.4864 *	0.4896 *	0.4509 *	0.4864 *	−0.0239	−0.0057	0.0045	0.0146	1.0000

Note: * represents a significant correlation coefficient at 0.05.

Moreover, the endogeneity is identified by applying two popular tests (i.e., Durbin Ch2 and Wu-Hausman). These tests are performed using lag 3 values as instrument variables (Bhimavarapu et al. 2022; Wooldridge 2015). In Table 4, both tests exhibit significant values at a 5% significance level in the three base models (Models 1, 2, and 3). Therefore, the explanatory variables are found to be endogenous. The three interaction models (Models 4, 5, and 6) have nominal values at 5%. Hence, interaction variables are exogenous. This study deploys the dynamic PDRA models (GMM) to overcome the biased estimates arising through endogeneity issues (Wooldridge 2015; Baltagi and Baltagi 2008).

Table 4. Endogeneity.

	.DV: SDG_Ind					
	T_CSR	CSR_edu	CSR_Env	i_dCSR_dIND_PS	i_dCSR_edu_dIND_PS	i_dT_CSR_Env_dIND_PS
Durbin Chi-2	8.08514 * (0.0045)	6.30402 * (0.0120)	5.45476 * (0.0195)	0.835575 (0.3607)	0.709013 (0.3998)	0.306135 (0.5801)
Wu-Hausman Test	8.40299 * (0.0045)	6.44144 * (0.0126)	5.52924 * (0.0205)	0.796756 (0.3741)	0.675306 (0.4131)	0.290529 (0.5910)

Note: The number in () is the *p*-value, while * indicates a significant value at the 5% significance level. DV stands for the dependent variable.

4.3. Results of Regression Analysis

Table 5 presents the regression results of all six models. A dynamic model approach is applied to test the hypotheses. The Sargan and Arellano–Bond tests ensure the model's consistency. The Sargan test shows insignificant values in all models. It confirms that no over-identification issue exists in the models (Wooldridge 2015; Baltagi and Baltagi 2008). In addition, the Arellano–Bond test identifies no autocorrelation issue in all models exhibiting insignificant values (Wooldridge 2015; Baltagi and Baltagi 2008). Therefore, applying these models for regression analysis of sample data is consistent.

Table 5. Regression result (dynamic panel data).

DV: SDG_Ind	Model 1 (Base_Model_1)	Model 2 (Base_Model_2)	Model 3 (Base_Model_3)	Model 4 (Interaction_1)	Model 5 (Interaction_2)	Model 6 (Interaction_3)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
SDG_Ind log 1	0.132 *	0.136 *	0.206 *	0.167 *	0.173 *	0.236 *
T_CSR	0.003 *					
CSR_edu		0.007 *				
CSR_Env			0.058 *			
dT_CSR				0.004 *		
dCSR_edu					0.007 *	
dCSR_Env						0.059 *
dIND_PS				0.108 *	0.112 ***	0.112 ***
i_dCSR_dIND_PS				0.000 ***		
i_dCSR_edu_dIND_PS					0.000 *	
i_dCSR_Env_dIND_PS						0.083
ln_RP	−1.433 *	−1.303 *	−1.630 *	−1.436 *	−1.318 *	−1.611 *
Cons.	77.669 *	75.597 *	75.744 *	77.002 *	74.649 *	75.384 *
Sragan Test	121.1437	120.5826	109.3801	120.2162	0.0508	109.1444
AR (1)	−1.7949	−1.7962	−1.8336	−1.868	−1.8716	−1.843

Note: The Saran test is a GMM framework test for overidentification concerns. Sargan's null hypothesis is that there is no over-identification problem in the dynamic panel data model. The Arnello–Bond test was employed in the study to detect serial autocorrelation in the first differenced error terms of order 1. One star * on the coefficient values represents a 1% significant level, and three stars *** on the coefficient values represents a 10% significant level. The numbers included in parenthesis () are *p*-values. DV indicates the dependent variable. T_CSR, CSR_edu, and CSR_Env are independent variables representing total CSR funds, CSR funds for education, and CSR funds for environment, respectively. The prefix 'd' in variables shows demean values of the variable. i_dT_CSR_dIND_PS, i_dCSR_edu_dIND_PS, and i_dCSR_Env_dIND_PS (i.e., i_dT_CSRXdIND_PS, i_dCSR_eduXdIND_PS, and i_dCSR_EnvXdIND_PS) are three interaction variables (INTR) with dIND_PS (poverty score) as the moderator.

In Table 5, the lag values of the dependent variable SDG_Ind [SDG_Ind(-1)] have a significant and positive coefficient in all four models. Therefore, previous sustainable growth improves India's current sustainable development. 'T_CSR' in Model 1 and 'dT_CSR' in Model 4 are significant and positive, with values of 0.003 and 0.004, respectively, at significance of 1%. Hence, it is implied that total CSR fund spending improves sustainable development in India. Furthermore, 'CSR_edu' and 'dCSR_edu' (in Models 2 and 5, respectively) are also significant at 1% with a coefficient of 0.007; hence, it also implies that CSR spending on education enhances the sustainable development of India. Similarly, 'CSR_Env' and 'dCSR_Env' (in Model 3 and 6, respectively) are both significant and positive, with values of 0.058 and 0.059, respectively, at 1% significance. Hence, it also implies that CSR spending on the environment also improves the sustainable development of India. 'dIND_PS' in Models 4, 5, and 6 are significant and positive, with values of 0.108 at 1% (Model 4) and 0.112 at 10% significance (Model 5 and 6).

The interaction terms (i_dT_CSR_dIND_PS and i_dCSR_edu_dIND_PS) are both found to be positive and significant, at 10% and 1%, respectively, in Models 4 and 5. Therefore, it indicates that total CSR funding and CSR funding on education enhance sustainable development at higher poverty scores. However, in Model 6, the interaction term 'i_dCSR_Env_dIND_PS' is insignificant. This indicates that the poverty score (poverty) does not significantly influence the environmental CSR spending's connection with sustainable development in India. The control variable ln_RP is negative and significant in all six models.

4.4. Robustness Check

The study's results should be validated for their robustness (Kanoujiya et al. 2022; Bhimavarapu et al. 2022). The multimodel approach is adopted to check the robustness using different explanatory variables T_CSR, CSR_edu, and CSR_Env (Kanoujiya et al. 2022; Bhimavarapu et al. 2022). The results are primarily similar in base models (Table 5). Interaction models also have identical outcomes (Table 5). Hence, this confirms that CSR affects sustainable development in India. Similarities in results demonstrate the robustness of the results.

5. Discussion

5.1. Hypothesis Validation and Comparison with Previous Studies

After evaluating the literature, the present study focuses on corporate social responsibility (CSR) in India concerning sustainable development (SD) and poverty reduction (PR). The study's premise is grounded in the literature. We evaluate it using suitable models (Tables 4 and 5). We also used rural population as a control variable for the validity of the result, which exposes a weakness in the method developed in Equations (1) and (2). Rural population (RP) is the first equation that serves as the foundation for Models 1, 2, and 3, which are considered as base models. The first, second, and third models are positively significant on India's sustainable development, which means total CSR spent and CSR spent on education. CSR spent on the environment is entirely significant for India's substantiable development. The fourth, fifth, and sixth models are based on the second equation—interaction models using poverty as a moderator. The fourth and fifth interaction models have a good and significant influence on India's sustainable development in terms of poverty reduction. The sixth model does not affect India's sustainable development in terms of poverty reduction. As a result, the study's hypothesis H_1 (corporate social responsibility substantially impacts India's sustainable development) has enough evidence in its support. The current findings indicate that CSR funds significantly affect sustainable development. The results are in support of several existing studies, such as Chatterjee and Mitra (2017), Herrmann (2004), Bhagwat (2011), and Manohar (2019).

5.2. Contribution and Implications

This study was conducted using secondary data and the data were gathered from 28 Indian states and 3 union territories between the fiscal years 2018 and 2021. For the study used specific variables and periods to investigate CSR funding and its impact on sustainable development in India. According to the findings, CSR funds should focus on education, the environment, and rural sectors. They can spend CSR funds on education, the environment, and the rural infrastructure sector because they can reduce poverty and support the sustainable development of Indian states.

According to the result, CSR funds should focus on education, the environment, and rural sectors. The corporate sector can spend CSR funds on education, the environment, and the rural infrastructure sector because they can reduce poverty and support the sustainable development of Indian states. It is to be noted that the release of CSR funds in India is not substantial. Thus, it should be increased to become more fruitful for India's sustainable growth, mainly focusing on the environment. This study has used specific variables and periods to investigate CSR funding and its impact on sustainable development in India to present fresh evidence on CSR and sustainable development. This finding is the novelty of this study. The study's findings have significant implications for corporations, governments, and NGOs to involve CSR activities to enhance sustainable growth in a rational manner. The Ministry of Corporate Affairs should focus on working with NGOs, and MCA should spend funds on NGO proposals that support education, the environment, and rural development. MCA should make policies for NGOs and corporates to monitor their projects and funds. This benefits India's rural sectors and sustainable development (Gigauri 2022; ElAlfy et al. 2020).

6. Conclusions

This research examines the effects of CSR funding used in India's environmental protection and education sectors to support India's sustainable development. The results suggest that CSR spending in the educational and environmental sectors significantly affects India's sustainable development. CSR funds have the potential to help India achieve sustainable growth and reduce poverty. Spending on the environment, education, and rural development can support India's efforts to reduce poverty and promote sustainable development by providing benefits to residents in rural areas. This study significantly contributes to the literature on sustainable development and CSR activities. The study also offers significant implications for concerned stakeholders to treat CSR funds as a supportive source for the nation's sustainable development.

This paper has certain limitations as well. This study was conducted in a sample of Indian states; hence, its scope is limited to India. India is an emerging nation with limited infrastructure, educational opportunities, and environmental protection. However, we believe this study is insightful for other emerging economies. It also desires to learn more about these subjects for rural development. CSR spending on rural development, health, and the environment might benefit sustainable development in India. Future studies can be conducted using different variables and periods. They can utilise secondary and primary data and other periods and use India's specific states and union territories.

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