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The impact of corporate social responsibility on firm efficiency

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ABSTRACT

The impact of corporate social responsibility (CSR) on business performance is increasingly becoming a topic of interest among scholars. This study examines how CSR influences the performance of sustainable businesses in Vietnam from 2019 to 2023. Business performance is measured through technical efficiency, calculated using the Data Envelopment Analysis (DEA) method. To analyze the relationship between CSR and business performance, the Tobit regression model is applied. The results indicate that CSR positively affects business performance when companies focus on economic and legal responsibilities, as these factors contribute to financial stability and regulatory compliance. However, ethical and philanthropic responsibilities tend to reduce operational efficiency, potentially due to increased costs or challenges in resource allocation. This suggests that while fulfilling economic and legal obligations enhances performance, businesses may face difficulties in balancing efficiency with ethical and philanthropic commitments. These findings highlight the need for strategic implementation of CSR to maximize both social impact and business efficiency. Companies should focus on optimizing ethical and philanthropic initiatives to minimize potential negative impacts while leveraging economic and legal responsibilities to drive performance. A balanced approach to CSR can contribute to both corporate sustainability and long-term operational effectiveness.

Contribution/ Originality: This study is the first to evaluate the impact of Corporate Social Responsibility (CSR) on the efficiency of sustainable enterprises in Vietnam. It offers new insights and empirical evidence on how CSR influences firm efficiency, contributing to the existing literature on sustainable business practices.

1. INTRODUCTION

Corporate Social Responsibility (CSR) has been a significant and evolving topic since the 1950s (Carroll, 2016). Over the decades, CSR has gained widespread attention from scholars, businesses, and policymakers, emphasizing its role in shaping corporate strategies and governance. It has become a key factor in organizational success, influencing business reputation, stakeholder relationships, and long-term sustainability (Carlini & Grace, 2021). With growing societal expectations, companies are increasingly integrating CSR into their operations; yet, the concept remains open to interpretation. Glavas (2016) highlights that while most large corporations engage in CSR in some capacity, there is still no universally accepted definition of the term. Some scholars define CSR as a company's ethical obligation to society, which extends beyond profit-making to include its ongoing commitment to social and environmental well-being (Safarzad, Farahnaki, & Farahbakhsh, 2016).

Over the past few decades, CSR has been extensively studied, particularly concerning its impact on firm efficiency (Demetriades & Auret, 2014; Oh & Park, 2015; Taiwo Adewale & Adeniran Rahmon, 2014). Safarzad et al. (2016) argue that the primary goal of most businesses is to enhance efficiency and productivity to maximize shareholder profits. However, to achieve long-term success, companies must integrate ethical, environmental, and social considerations into their economic activities. The question of whether CSR contributes to or hinders firm efficiency remains a topic of debate. Some studies suggest that CSR initiatives create value by fostering stakeholder trust, enhancing brand reputation, and improving employee motivation. Others argue that CSR may impose additional costs, diverting resources from core business operations and reducing profitability (Fomukong, 2014).

The debate over whether CSR positively impacts firm efficiency has led to conflicting conclusions. Some scholars argue that CSR aligns with profit maximization and shareholder wealth, emphasizing that responsible business practices contribute to long-term financial performance (Deng, Kang, & Low, 2013; Edmans, 2012; Flammer, 2013; Servaes & Tamayo, 2013). Companies that prioritize CSR often experience improved consumer loyalty, reduced regulatory risks, and enhanced employee engagement, all of which contribute to higher efficiency and productivity. Proponents of this view believe that businesses can achieve a balance between social responsibility and financial success by strategically implementing CSR initiatives that align with corporate objectives.

Conversely, others argue that CSR can be costly and may negatively affect firm efficiency, particularly when ethical and philanthropic responsibilities outweigh economic and legal obligations. Friedman (1970) well-known argument states that a company's sole responsibility is to maximize shareholder value, and any engagement in CSR beyond legal compliance may reduce business performance. Some studies support this claim, suggesting that CSR initiatives often require significant financial investments, which may not always translate into measurable returns (Aupperle, Carroll, & Hatfield, 1985; Bénabou & Tirole, 2010; Krüger, 2015). Additionally, the effectiveness of CSR in improving firm performance may depend on industry-specific factors, company size, and the underlying motivations driving CSR implementation (Esteban-Sanchez, de la Cuesta-Gonzalez, & Paredes-Gazquez, 2017; Wu & Shen, 2013).

Despite extensive research on CSR and firm efficiency, a key question remains unanswered: Does CSR enhance firm efficiency and contribute to corporate sustainability? The existing literature presents mixed findings, making it difficult to draw definitive conclusions. One reason for these inconsistencies is the varying motivations behind CSR adoption. Some companies implement CSR as a strategic tool to improve their reputation and drive profitability, while others engage in CSR primarily for compliance or ethical considerations. These differing approaches may influence the extent to which CSR impacts firm efficiency.

This study aims to contribute to the ongoing discourse by analyzing the relationship between CSR and firm efficiency in the context of sustainable enterprises in Vietnam. Specifically, we examine whether CSR enhances efficiency and supports corporate sustainability for firms listed in the Vietnam Chamber of Commerce and Industry's (VCCI) annual sustainable business rankings. The inclusion of sustainable enterprises provides a unique perspective, as these firms are already recognized for their commitment to responsible business practices. By focusing on this specific group, we aim to determine whether CSR plays a direct role in improving efficiency and long-term corporate success.

The findings of this study will offer valuable insights for businesses seeking to enhance efficiency while maintaining strong CSR commitments. Understanding the relationship between CSR and firm efficiency can help companies optimize their CSR strategies, ensuring that social and environmental initiatives contribute to—not hinder—business performance. Additionally, this study will help policymakers and industry leaders develop frameworks that encourage responsible business practices without compromising efficiency.

2. LITERATURE REVIEW

Before the 1950s, Corporate Social Responsibility (CSR) was primarily viewed as charitable giving, with businesses engaging in philanthropy without formal integration into their operational strategies. However, the concept of CSR evolved significantly following Bowen (1953) seminal work, Social Responsibilities of the Businessman, in which he defined CSR as the obligation of businesses to align their decisions and actions with societal goals and values. This marked a shift from a narrow philanthropic view to a broader ethical and strategic approach to business responsibility. During the 1960s and 1970s, CSR expanded beyond philanthropy to include legal, ethical, and economic responsibilities. Carroll (1991) further developed this concept by introducing the "Pyramid of CSR", a four-tier model that classifies CSR into economic, legal, ethical, and philanthropic dimensions. This model emphasized that businesses must not only generate profits (economic responsibility) but also comply with laws (legal responsibility), uphold ethical standards (ethical responsibility), and contribute to social causes (philanthropic responsibility). Despite the widespread adoption of Carroll's framework, there is still no universal consensus on the definition, scope, and components of CSR. Carroll and Shabana (2010) and Hanzaee and Rahpeima (2013) argue that CSR is interpreted differently depending on the academic field and cultural context. Dahlsrud (2008) analyzed 37 definitions of CSR, revealing both shared themes and divergent perspectives. While this diversity has enriched CSR research, it also presents challenges in establishing a globally accepted framework.

Carroll (1991) Pyramid of CSR remains influential, highlighting the interconnectedness of economic, legal, ethical, and philanthropic responsibilities rather than treating them as independent elements. Freeman (1983) reinforced this perspective through stakeholder theory, which asserts that businesses must consider the interests of all stakeholders—including employees, customers, suppliers, and the broader community—rather than focusing solely on shareholder value. Further expanding CSR's scope, Elkington (1997) introduced the Triple Bottom Line (TBL) framework, advocating for a balanced approach between profitability, environmental sustainability, and social responsibility. This framework underscores the importance of businesses achieving long-term sustainability by integrating financial performance (profit), environmental stewardship (planet), and social well-being (people). Carroll (2016) later refined CSR assessment criteria, reaffirming the four dimensions of economic, legal, ethical, and philanthropic responsibilities as core elements of CSR evaluation.

Firm efficiency can be assessed using various approaches, ranging from financial indicators to productivity-based metrics. While financial indicators such as profitability, return on assets (ROA), and return on equity (ROE) are commonly used to measure business success, economic studies often focus on technical efficiency, which evaluates the relationship between inputs and outputs (Abidin & Endri, 2009). Coelli, Rao, O'donnell, and Battese (2005) propose two main approaches to measuring efficiency: Input-oriented approach – Businesses aim to minimize inputs while maintaining the same level of output; Output-oriented approach – Businesses maximize output using a fixed set of resources. Firm efficiency measurement methods can be categorized into: (1) Parametric approaches, such as Stochastic Frontier Analysis (SFA), which estimate efficiency using econometric models; (2) Non-parametric approaches, such as Data Envelopment Analysis (DEA), which use linear programming to evaluate the relative efficiency of firms. Among these, DEA is widely used due to its flexibility and ease of calculation (Dong, Hamilton, & Tippett, 2014). Given its advantages, this study employs DEA to estimate firm efficiency in the context of CSR implementation.

The impact of CSR on firm efficiency has been extensively examined in academic research, but findings remain inconclusive. Some scholars argue that CSR enhances efficiency, while others suggest that CSR initiatives may impose additional costs that diminish business performance. Several studies highlight a positive correlation between CSR and firm efficiency. Carroll (2000) and Peterson (2004) argue that CSR contributes to long-term efficiency by improving corporate reputation, fostering stakeholder trust, and enhancing employee motivation. Arlow and Gannon (1982) and Ullmann (1985) also support this view, finding that CSR initiatives drive business performance. Harrison and Freeman (1999) and Hart and Ahuja (1996) provide further empirical evidence linking CSR engagement to efficiency

gains, though they note that the impact varies depending on industry and firm characteristics. Aragón-Correa and Rubio-Lopez (2007) demonstrate a strong positive relationship, indicating that companies with proactive CSR strategies experience higher efficiency levels. Wang and Hsu (2011) similarly find that firms implementing CSR achieve significant efficiency improvements, suggesting that companies can simultaneously enhance financial performance and fulfill social responsibilities. Naseem, Shahzad, Asim, Rehman, and Nawaz (2020) further support this claim, showing that CSR has both direct and indirect effects on efficiency, particularly in firms with strong R&D and operational capabilities (Al-Shammari, Banerjee, & Rasheed, 2022). Recent research by Bag and Omrane (2022) identifies a moderate positive association between CSR and efficiency, while Shabir, Ping, Işik, and Razzaq (2024) conclude that CSR activities significantly improve firm efficiency, particularly in firms that engage in environmentally sustainable practices. However, their study also notes that social and governance-related CSR activities have weaker effects on efficiency, emphasizing the role of regulatory environments and national standards in shaping CSR's impact.

Despite the prevailing view that CSR enhances efficiency, some scholars argue that CSR initiatives can be costly and inefficient. Gilley, Worrell, Davidson III, and El–Jelly (2000) find no significant relationship between CSR and efficiency, suggesting that CSR activities may not always yield measurable financial benefits. Renneboog, Ter Horst, and Zhang (2008) caution against assuming a causal relationship, arguing that firms with high efficiency levels may engage in CSR due to excess financial resources, rather than CSR directly driving efficiency improvements. Similarly, Belkaoui and Karpik (1989) argue that financially successful firms are more likely to adopt CSR initiatives, rather than CSR being the cause of their success. Friedman (1970) famously contended that the primary duty of businesses is profit maximization, and that CSR engagement may reduce shareholder value. Aupperle et al. (1985); Bénabou and Tirole (2010) and Krüger (2015) support this argument, stating that CSR initiatives may divert resources away from core business activities, negatively affecting efficiency.

The relationship between corporate social responsibility (CSR) and business performance remains a topic of debate in current research. While many studies acknowledge a positive link between CSR and business performance, others indicate neutral or even negative impacts, depending on variables such as industry, scale, CSR implementation methods, and the legal environment. Stemming from this inconsistency, the current study aims to explore the causal relationship between CSR and business performance. The findings are expected to contribute to shaping effective CSR strategies while providing a scientific foundation for leaders and policymakers.

3. METHODS AND DATA

3.1. DEA Method

Data Envelopment Analysis (DEA) was developed by Charnes, Cooper, and Rhodes (1978) based on the theoretical foundation laid by Farrell (1957) who first proposed the concept of measuring technical efficiency using the production frontier. DEA applies linear programming to construct an efficient technical frontier, thereby identifying the most efficient decision-making units (DMUs) – those that maximize output with a given level of input. The technical efficiency index reflects how closely a DMU approaches the efficiency frontier and is calculated as the ratio of actual output to the maximum potential output (with constant input). DMUs on the frontier are considered fully efficient, while those below the frontier are quantified based on their relative distance to this boundary. The basic DEA model for measuring technical efficiency is described as follows:

$$\text{Max } E_m = \sum_{j=1}^{J} VjmYjm.$$

$$\sum_{j=1}^{J} VjmYjm - \sum_{i=1}^{I} UimXin \leq 0 \text{ for all i.}$$

$$\sum_{i=1}^{I} UimXin = 1.$$

Where, E_m = Technical efficiency of m^{th} firm; Yjm = j^{th} output of m^{th} firm; Vjm = Value of j^{th} output of m^{th} firm; Xim = i^{th} input of m^{th} firm; Uim = Value of i^{th} input of m^{th} firm; Vjm, Uim ≥ 0; i = 1,2,….I; j = 1,2,….J.

3.2. Selecting Inputs and Outputs in a DEA Model

The application of the Data Envelopment Analysis (DEA) model in measuring enterprise efficiency requires the careful selection of input and output variables. However, there is still no consensus in the literature regarding the most appropriate factors to include in efficiency measurement and analysis. Building on previous studies, this research adopts and extends existing models by incorporating relevant variables to assess firm efficiency.

To calculate technical efficiency, four input variables are selected: (1) Equity – representing the firm's own capital (Jaloudi, 2019; Nourani, Devadason, Kweh, & Lu, 2017; Taib, Ashraf, & Razimi, 2018); (2) Labor – reflecting the workforce employed (Bhat & Kaur, 2024; Charoenrat, Harvie, & Amornkitvikai, 2013; Ikram, Su, & Sadiq, 2016; Le, 2010; Le, Vu, & Nghiem, 2018); (3) Liabilities – indicating the firm's debt obligations (Endri et al., 2022; Jaloudi, 2019; Nourani et al., 2017; Sharew & Fentie, 2018; Sulaeman, Moelyono, & Nawir, 2019); (4) Operating expenses – capturing the costs incurred in running the business (Bhat & Kaur, 2024; Jaloudi, 2019; Sharew & Fentie, 2018; Taib et al., 2018).

The output variable selected for efficiency measurement is revenue, which reflects the firm's total earnings (Bhattacharyya, 2012; Ikram et al., 2016; Jorge-Moreno & Rojas Carrasco, 2015; Kapelko & Oude Lansink, 2015; Le et al., 2018).

3.3. Tobit Regression

The Tobit regression model, also known as a censored regression model, is used when the dependent variable is restricted within a specific range. In this study, the dependent variable—technical efficiency of enterprises—ranges between 0 and 1, making Tobit regression the appropriate analytical method. To assess the impact of corporate social responsibility (CSR) on firm efficiency, this study develops a regression model based on existing literature and relevant empirical studies. The model is formulated as follows:

$$TE_{it} = \beta_0 + \beta_1(CSR_{it}) + \sum \beta_j (CONTROL_{it}) + U_{it}$$

In the model, t represents the year, i denotes the firm, and j indicates the number of control variables. β_0 is the intercept coefficient, $\beta_1 - \beta_j$ are the regression coefficients, and U_{it} is the disturbance term. The dependent variable, technical efficiency (TE), ranges between 0 and 1. The key explanatory variable, corporate social responsibility (CSR), is categorized into three components:

ESR – Economic Responsibility.

LSR – Legal Responsibility.

PSR – Philanthropic and Ethical Responsibilities.

Additionally, the control variables included in the model are: Firm size (SIZE); Capital structure (CAP); Cost efficiency (CEF); Economic growth (GDP); Inflation (INF).

The selection of CSR measurement variables varies across the literature. However, Carroll (2016) framework, which classifies CSR into economic, legal, and philanthropic/ethical responsibilities, is the most widely used approach. Accordingly, this study evaluates CSR based on the following components: (1) Economic responsibility (ESR); (2) Legal responsibility (LSR); (3) Philanthropic and ethical responsibilities (PSR).

The effect of CSR on firm efficiency is analyzed through the regression coefficient β_1 in the model: (1) If β_1 is positive and statistically significant, CSR has a positive impact on firm efficiency; (2) If β_1 is negative and statistically significant, CSR has a negative impact on firm efficiency; (3) If β_1 is not statistically significant, CSR has no impact on firm efficiency.

To ensure the robustness of results, control variables (SIZE, CAP, CEF, GDP, INF) are gradually introduced into the model to examine the consistency of CSR's impact on firm efficiency. Details of these variables are presented in Table 1.

Table 1. Description of the variables and data source.

Variables	Symbol	Measurement	Source of citation	Data source
Dependent variable				
Firm efficiency	TE	Technical efficiency	Belasri, Gomes, and Pijourlet (2020)	Estimated by DEA method
Explanatory variables				
Corporate social responsibility	CSR	(ESR; LSR; PSR)	Carroll (2016)	Firms' financial statements/Annual report
Economic responsibilities	ESR	Profit/Sales	Carroll (2016)	Firms' financial statements/Annual report
Legal responsibilities	LSR	Submitting national budget/Total operating income	Carroll (2016)	Firms' financial statements/Annual report
Philanthropic and ethical responsibilities	PSR	Philanthropic expense/Profit	Carroll (2016)	Firms' financial statements/Annual report
Control variables				
Firm size	SIZE	Total asset (Trillion Vietnamese Dong)	Wang and Liu (2009); Bhaumik, Das, and Kumbhakar (2012) and Kapelko and Oude Lansink (2015)	Firms' financial statements/Annual report
Capital structure	CAP	Liabilities/Total asset	Kapelko and Oude Lansink (2015) and Tiberti, Stefani, and Lombardi (2016)	Firms' financial statements/Annual report
Cost efficiency	CEF	Total operating expense /Total asset	Alabi, Adebisi, and Fatimehin (2020)	Firms' financial statements/Annual report
Growth economic	GDP	GDP growth (Annual %)	Alabi et al. (2020) and Tousek, Hinke, Malinska, and Prokop (2021)	World development indicators
Inflation	INF	Consumer prices (Annual %)	Alabi et al. (2020) and Tousek et al. (2021)	World development indicators

3.4. Research Hypotheses

The literature review indicates that corporate social responsibility (CSR) influences firm efficiency, though the impact of each CSR component varies. While businesses generally aim for CSR to serve as a catalyst for improved efficiency, the specific effects differ across firms and industries. Based on this foundation, the present study proposes the following hypotheses:

H_1: Economic responsibilities (ESR) positive impact on firm efficiency.

H_2: Legal responsibilities (LSR) positive impact on firm efficiency.

H_3: Philanthropic and ethical responsibilities (PSR) positive impact on firm efficiency.

3.5. Sample and Data

Since 2016, the Vietnam Chamber of Commerce and Industry (VCCI) has annually evaluated and published a list of the top 100 sustainable enterprises under the direction of the Vietnamese Government. These rankings are based on the Corporate Sustainability Index (CSI), which consists of 130 criteria designed to assess a firm's sustainability across five key aspects: Economic efficiency; Corporate governance; Environmental impact; Labor practices; Social responsibility. This study focuses on sustainable enterprises in Vietnam as the research population. The sample consists of firms that have been consistently ranked among the top 100 sustainable enterprises for five consecutive years (2019–2023). The study relies on secondary data obtained from: (1) Annual reports of the selected enterprises;

(2) The General Statistics Office of Vietnam for industry-specific data; (3) Macroeconomic indicators (such as GDP and Inflation) sourced from the Global Development Indicator (WDI) database of the World Bank. The input and output variables used in the Data Envelopment Analysis (DEA) model for measuring technical efficiency are summarized in Table 2. These figures indicate significant variations in revenue, equity, liabilities, workforce size, and operating expenses among firms and across the research period. The differences highlight the heterogeneity of sustainable enterprises in Vietnam, reinforcing the need for efficiency assessments using robust analytical models.

Table 2. Descriptive statistics of variables data in DEA model.

Variables	Obs.	Mean	Std. dev.	Min.	Max.
Y – Revenue	95	11.394	17.299	266	61.012
X1 – Equity	95	6.361	8.623	163	35.850
X2 – Liabilities	95	18.083	43.445	130	198.843
X3 – Labor	95	3.648	4.184	172	23.634
X4 – Operating expenses	95	10.079	15.149	253	52.530

The variables used in the Tobit regression model to assess the impact of corporate social responsibility (CSR) on firm efficiency are summarized in Table 3. The dataset includes key efficiency and CSR indicators, along with macroeconomic and firm-specific control variables. The data indicate significant variations in firm size (SIZE), capital structure (CAP), and cost efficiency (CEF) across enterprises and over time. These differences reflect the diverse scale, financial structure, and cost management practices among firms in the sample. However, the sustainability of enterprises does not appear to be strongly dependent on these characteristics, suggesting that other factors, such as strategic CSR initiatives, may play a more crucial role in shaping long-term corporate sustainability.

Table 3. Descriptive statistics of variables data in Tobit model.

Variables	Obs.	Mean	Std. dev.	Min.	Max.
TE	95	0.924	0.089	0.579	1.000
ESR	95	0.141	0.103	0.007	0.490
LSR	95	0.091	0.073	0.000	0.384
PSR	95	0.016	0.027	0.000	0.171
GDP	95	0.052	0.022	0.026	0.080
INF	95	0.029	0.005	0.018	0.033
CAP	95	0.440	0.210	0.084	0.899
SIZE	95	0.024	0.049	0.001	0.221
CEF	95	0.755	0.863	0.090	4.453

4. RESULTS AND DISCUSSION

To examine the presence of multicollinearity in the model, the author conducted a correlation analysis using STATA software on panel data. The degree of linear relationship between the variables is presented through a correlation coefficient matrix, as shown in Table 4. The correlation coefficient reflects the level of linear association between two variables, regardless of their causal relationship. The analysis results indicate that all correlation coefficients between pairs of independent variables are below 0.8. According to Franke (2010) the threshold of 0.8 is considered the limit at which multicollinearity may negatively affect the accuracy of regression estimates. Therefore, with the low correlation coefficients observed, it can be concluded that multicollinearity is not significant in this model, thereby reinforcing the reliability of the regression results.

Table 4. Matrix of correlation coefficients of variables.

Variables	TE	ESR	LSR	PSR	GDP	INF	CAP	SIZE	CEF
TE	1.000	0.106	-0.062	-0.196	0.029	-0.112	-0.018	-0.060	0.376
ESR	0.106	1.000	0.447	-0.258	0.023	0.046	-0.237	-0.156	-0.439
LSR	-0.062	0.447	1.000	0.121	-0.037	-0.030	-0.116	-0.317	-0.301
PSR	-0.196	-0.258	0.121	1.000	0.011	-0.063	-0.120	-0.094	0.075
GDP	0.029	0.023	-0.037	0.011	1.000	0.419	-0.001	0.002	-0.023
INF	-0.112	0.046	-0.030	-0.063	0.419	1.000	-0.006	0.014	0.052
CAP	-0.018	-0.237	-0.116	-0.120	-0.001	-0.006	1.000	0.716	0.021
SIZE	-0.060	-0.156	-0.317	-0.094	0.002	0.014	0.716	1.000	-0.201
CEF	0.376	-0.439	-0.301	0.075	-0.023	0.052	0.021	-0.201	1.000

The Tobit regression model was tested for model suitability, multicollinearity, heteroscedasticity, and autocorrelation, with all issues identified and corrected. The results are presented in Table 5. The F-test statistic for all three models is $0.000 < 0.05$, indicating that at least one independent variable has a significant effect and is not equal to zero. This confirms that all three models are statistically valid and well-fitted for analysis. Therefore, the model ensures reliability and robustness for further interpretation.

Table 5. Tobit regression estimation results.

Variables	Model 1		Model 2		Model 3	
	Coeff.	P. value	Coeff.	P. value	Coeff	P. value
ESR	0.708	0.000***				
LSR			0.448	0.046**		
PSR					-1.089	0.017**
GDP	0.477	0.401	0.495	0.430	0.568	0.355
INF	-4.218	0.078*	-3.422	0.194	-3.874	0.134
CAP	-.016	0.847	-0.108	0.260	-0.092	0.312
SIZE	0.466	0.189	0.649	0.147	0.260	0.493
CEF	0.164	0.000***	0.135	0.000***	0.101	0.000***
Constant	0.840	0.000***	0.931	0.000***	1.020	0.000***
F – test (Wald)	0.000		0.000		0.000	

Note: ***p < 0.01 indicates 1% significance level; **p < 0.05 indicates 5% significance level; *p < 0.1 indicates 10% significance level.

The findings presented in Table 5 confirm that corporate social responsibility (CSR) significantly influences firm efficiency, with varying effects across different CSR components. The analysis, based on three models, demonstrates that economic and legal responsibilities enhance firm efficiency, while philanthropic and ethical responsibilities negatively impact it.

The estimation of Model 1, where Economic Responsibilities (ESR) represents CSR, yields a positive regression coefficient of 0.708, statistically significant at the 1% level. This suggests that businesses prioritizing economic responsibilities—such as profitability, financial stability, and job creation—experience higher efficiency levels. Specifically, a 1% increase in ESR leads to a 0.708 percentage point rise in firm efficiency. This finding aligns with previous research highlighting the economic benefits of CSR engagement (Belasri et al., 2020; Naseem et al., 2020). Similarly, Model 2, which assesses CSR through Legal Responsibilities (LSR), reports a positive regression coefficient of 0.448, statistically significant at the 5% level. This implies that firms adhering to legal obligations, regulatory compliance, and corporate governance practices tend to operate more efficiently. A 1% increase in LSR results in a 0.448 percentage point improvement in efficiency. This finding supports the argument that legal compliance reduces risks, enhances investor confidence, and fosters long-term operational stability (Al-Shammari et al., 2022).

Conversely, the results of Model 3, which captures CSR through Philanthropic and Ethical Responsibilities (PSR), indicate a negative regression coefficient of -1.089, statistically significant at the 5% level. This suggests that philanthropic and ethical CSR activities reduce firm efficiency, meaning a 1% increase in PSR leads to a 1.089 percentage point decline in efficiency. This outcome may be attributed to the financial burden associated with

philanthropy and ethical commitments, which may not yield immediate economic returns. While charitable donations, community development initiatives, and ethical labor practices contribute to a firm's social reputation, they may also increase costs and divert resources away from core business activities. This aligns with prior studies suggesting that excessive CSR spending may reduce operational efficiency if not strategically integrated into business models (Fomukong, 2014; Shabir et al., 2024). The findings reveal a dual impact of CSR on sustainable enterprises in Vietnam—while economic and legal responsibilities drive efficiency, philanthropic and ethical commitments may hinder it. These results are consistent with the conclusions of Fomukong (2014) who argued that CSR's influence on firm value creation varies, yielding positive, negative, or insignificant effects depending on how CSR is implemented. Empirical studies have also documented similar trends in CSR–firm efficiency relationships (Al-Shammari et al., 2022; Belasri et al., 2020; Naseem et al., 2020; Shabir et al., 2024). The findings highlight the importance of strategically balancing CSR initiatives to optimize both social contributions and business efficiency.

Beyond CSR, Table 5 also indicates that inflation (INF) negatively impacts firm efficiency, while cost efficiency (CEF) positively influences sustainable firm efficiency in Vietnam.

Inflation (INF): The negative impact of inflation suggests that rising prices increase operational costs, reducing firms' ability to allocate resources efficiently. Inflationary pressures may also affect purchasing power and profitability, ultimately lowering overall efficiency.

Cost Efficiency (CEF): The positive relationship between cost efficiency and firm performance underscores the significance of effective cost management strategies. Firms that optimize operational expenses and resource utilization tend to achieve higher efficiency levels, reinforcing the importance of financial discipline in corporate sustainability.

This study confirms that CSR significantly influences firm efficiency, though the impact varies by CSR dimension. Economic and legal responsibilities enhance efficiency, while philanthropic and ethical commitments may reduce it due to increased costs and resource allocation challenges. Additionally, macroeconomic factors such as inflation and cost efficiency also affect firm performance. These findings suggest that Vietnamese firms should adopt a balanced CSR approach, prioritizing economic and legal responsibilities while strategically integrating philanthropic efforts to maximize efficiency and sustainability.

5. CONCLUSION

In recent decades, corporate social responsibility (CSR) has gained significant attention from scholars in the field of business. Researchers across various disciplines have examined the social, economic, philanthropic, and legal dimensions of CSR, focusing on how these activities influence firm finance, productivity, and efficiency. However, prior studies have produced mixed findings, with diverse conclusions on the nature and extent of CSR's impact on firm efficiency. This study investigates the effect of CSR on the efficiency of sustainable enterprises in Vietnam during the period 2019–2023. Using annual panel data over five years, the study employs the Data Envelopment Analysis (DEA) method and Tobit regression for estimation. The findings indicate that CSR has both positive and negative impacts on firm efficiency. Specifically, economic and legal responsibilities enhance efficiency, while philanthropic and ethical responsibilities tend to reduce it. These results suggest that the effective implementation of CSR can mitigate negative effects while maximizing positive contributions to firm performance.

The findings offer important insights for business managers and policymakers in Vietnam aiming to promote sustainable enterprise development:

Strategic CSR Implementation: Business managers should prioritize economic and legal responsibilities, as these positively influence firm efficiency. Investing in financial stability, regulatory compliance, and governance practices can contribute to long-term operational success. For philanthropic and ethical responsibilities, firms should focus on improving the effectiveness of implementation to ensure that these activities align with corporate objectives and efficiency goals rather than imposing excessive financial burdens.

Enhancing the Business Environment: Policymakers should improve the investment climate by developing comprehensive legal and institutional frameworks that support sustainable business operations. Strengthening corporate governance regulations and encouraging transparent CSR practices will help enterprises integrate social responsibility into their strategies without compromising efficiency.

Encouraging Sustainable Enterprise Growth: The government and industry regulators should promote CSR best practices, offering incentives for companies that successfully integrate CSR into their business models. Expanding support programs for CSR-driven enterprises can facilitate innovation, stakeholder engagement, and long-term economic resilience.

As with any empirical study, this research has certain limitations that future investigations may address:

Sample Size Constraints: The study focuses on 19 enterprises out of the 100 sustainable enterprises ranked annually by the Vietnam Chamber of Commerce and Industry (VCCI). Future research should consider a larger sample size to enhance the generalizability of findings.

Limited CSR Variables: The analysis includes only three CSR components (economic, legal, and philanthropic/ethical responsibilities). Future studies could incorporate a broader set of CSR indicators, such as environmental responsibility, stakeholder engagement, and corporate governance, to provide a more comprehensive understanding of CSR's impact on efficiency.

Timeframe of Analysis: The study covers a five-year period (2019–2023). Extending the timeframe in future research would allow for longitudinal analysis, capturing trends and evolving CSR dynamics over a longer period.

This study provides empirical evidence on the dual impact of CSR on firm efficiency, emphasizing the importance of strategic CSR integration in sustainable enterprises. By prioritizing economic and legal responsibilities and refining philanthropic initiatives, businesses can achieve a balance between social impact and efficiency. Policymakers also play a crucial role in fostering a supportive environment for sustainable enterprises through regulatory improvements and institutional reforms. Addressing the study's limitations in future research will further enrich our understanding of CSR's evolving role in corporate performance and sustainability.

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