

## Sustainability Accounting and Income Inequality: The Moderating Role of Control of Corruption



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### ABSTRACT

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*control of corruption, emerging economies, income inequality, institutional quality, sustainability accounting*

This study investigates whether the relationship between corporate sustainability accounting practices (SAP) and national-level income inequality (GINI) is contingent upon institutional quality in emerging Asian economies. Using an unbalanced panel of 18 countries (2005-2022), fixed-effects models (FEM) with Driscoll-Kraay standard errors, System Generalized Method of Moments (GMM), and sub-sample analyses, we find that sustainability accounting adoption alone has no statistically significant effect on reducing GINI. Our core finding demonstrates that control of corruption (CoC) acts as a decisive moderator: the inequality-reducing effect of sustainability accounting becomes statistically significant only in countries with strong corruption control. Marginal effect analysis identifies an estimated turning point (CoC of around 0.23 in our model specification) beyond which sustainability practices yield tangible inequality-reducing outcomes, while in weak institutional environments, sustainability reports risk being merely symbolic acts. We further propose four plausible micro-level transmission channels—labor law enforcement, tax compliance, environmental justice, and information credibility—through which corruption control may condition this relationship. These results are robust to endogeneity corrections, alternative quality-based proxies, extended samples including high-income Asian economies, and additional controls such as trade openness (TRADE) and FDI. By establishing corruption control as a critical boundary condition, this study reconciles prior conflicting findings and implies that sustainability reporting mandates must be coupled with institutional reform and anti-corruption efforts to generate real social value.

## 1. INTRODUCTION

The current global landscape is characterized by a striking paradox: the simultaneous emergence of two seemingly opposing trends. On the one hand, rising income inequality (GINI) has become one of the most pressing socioeconomic challenges of the 21st century [1]. In emerging economies in particular, the widening gap between the rich and the poor not only threatens social cohesion but also constrains the potential for sustainable economic growth [2, 3]. On the other hand, sustainable development is increasingly regarded as an existential imperative for the global business community. A growing number of firms have adopted sustainability accounting practices (SAP), disclosing information on environmental, social, and governance (ESG) activities as an integral part of their business strategies [4-6]. In theory, such commitments are expected to create shared value, thereby contributing to addressing macro-level social issues, including GINI.

However, while the number of firms publishing sustainability disclosures has surged, the empirical evidence on their substantive impact on national-level GINI remains ambiguous, inconsistent, and at times contradictory. Prior studies have primarily focused on traditional macroeconomic

determinants of inequality, such as tax policy and education [7], or have been confined to analyzing the micro-level effects of corporate social activities, such as financial performance [8, 9]. Consequently, a critical knowledge gap persists: the direct link between aggregated firm-level sustainability practices and country-level inequality outcomes, and more importantly, the conditions that determine the effectiveness of this link. The inconsistency in prior findings raises an urgent research question: Is the impact of sustainability accounting a universal phenomenon, or does its effectiveness systematically depend on a key contextual factor that previous studies have overlooked?

This study argues that the factor explaining this paradox is institutional quality, specifically the level of control of corruption (CoC). According to institutional theory, corporate behavior does not occur in isolation but is profoundly shaped by the institutional framework of society [10]. We argue that in environments with high levels of corruption, sustainability reports risk becoming instruments of "greenwashing" or mere symbolic acts that do not reflect the true nature of corporate activities [11, 12]. Conversely, a clean institutional environment with effective law enforcement mechanisms serves as a "catalyst," compelling paper commitments to be translated into concrete actions, thereby generating tangible

social impacts. Based on this reasoning, the study seeks to answer two main questions:

(i) Does widespread adoption of SAP in a country help reduce GINI?

(ii) What role does CoC play in this relationship? Does a clean institutional environment amplify the positive effect of sustainability accounting on reducing GINI?

By answering these questions, the study expects to make important contributions to both theory and practice. First, this is among the pioneering studies to empirically test the direct relationship between aggregated micro-level SAP and macro-level GINI outcomes. Second, by incorporating CoC as a moderating variable, this study not only seeks to explain the conflicting results of prior works but also illuminates the institutional conditions necessary for corporate sustainability commitments to be "transformed" into actual social outcomes. Rather than asking a simple question—"Does sustainability accounting work?"—we pose a deeper and more pressing question: "Under what institutional conditions does it actually work?" Third, the study focuses on the context of emerging Asian economies, a region facing the dual challenge of rising inequality and persistent governance and corruption issues, thereby offering important and context-relevant policy implications.

The remainder of the paper is structured as follows. Section 2 reviews the relevant theories and empirical studies to develop the research hypotheses. Section 3 presents the research methodology, econometric model, and data. Section 4 analyzes and presents the empirical results. Finally, Section 5 discusses the findings, highlights theoretical and policy implications, and concludes the study.

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

### 2.1 Sustainability accounting and corporate social responsibility

Amid increasing societal pressure on the role of corporations, sustainability accounting is regarded as a critical field, defined as the process of measuring, analyzing, and reporting information on an organization's ESG performance to support internal decision-making and meet the information needs of external stakeholders [13, 14]. This process extends beyond traditional financial indicators to encompass non-financial impacts, thereby providing a more comprehensive reflection of a firm's contributions to and effects on society and the environment [15].

The most prevalent theoretical foundation for SAP is Stakeholder Theory. Pioneered by Freeman [16], this theory argues that a firm's long-term survival and success depend not solely on maximizing shareholder profit but also on balancing and addressing the interests of all stakeholders. These stakeholders include employees, customers, suppliers, local communities, governments, and civil society organizations. Accordingly, sustainability accounting serves as an essential tool for firms to implement and demonstrate transparency in their social responsibilities [17]. Through sustainability reports, firms can demonstrate compliance, accountability, and commitment to the diverse demands of stakeholder groups, thereby strengthening their reputation and building trust [18].

However, it is noteworthy that the majority of theoretical

frameworks and empirical evidence on sustainability accounting have been developed in the context of advanced Western economies, where monitoring institutions are mature and civil society pressure is strong. Tilt [19] cautioned that findings on corporate social responsibility (CSR) cannot be mechanically generalized across different national contexts, as institutional and cultural factors may play a decisive role. Similarly, Ali et al. [20], in a systematic review, demonstrated that the determinants of sustainability disclosure differ significantly between developed and developing countries, particularly regarding the role of legal regulations and market pressures. In the Asian context, Chapple and Moon [21] were among the first to compare CSR practices across seven Asian countries, finding that the level of national development was the strongest predictor of CSR adoption, while industry factors also exerted significant influence. At the individual country level, Belal and Owen [22] showed that in Bangladesh, corporate social reporting was largely driven by external pressure from international organizations rather than intrinsic commitment, raising questions about the substantive nature of such activities. Muttakin et al. [23] further confirmed that in emerging markets, corporate governance characteristics and ownership structures strongly influence the extent of sustainability disclosure. More recently, Nguyen et al. [24] analyzed the relationship between environmental performance, sustainability governance, and financial outcomes in China, demonstrating that the legal framework and state enforcement mechanisms play an important mediating role. These Asia-specific studies reveal a clear gap: although sustainability accounting is developing rapidly in the region, understanding of its actual social impact—particularly in relation to GINI and institutional conditions—remains very limited.

### 2.2 The relationship between sustainability accounting and income inequality

Grounded in Stakeholder Theory, SAP require firms to consider the interests of multiple groups beyond shareholders. The core argument is that sustainability-oriented activities have the potential to create income redistribution mechanisms, thereby reducing overall inequality. Specifically, firms adopting sustainability accounting tend to pay fairer wages, invest in employee welfare and human capital development, thereby narrowing the income gap within organizations [25]. They also tend to increase investment in communities through social, educational, and healthcare projects, contributing to improved livelihoods and opportunities for disadvantaged groups [26]. More importantly, firms with high social responsibility tend to comply more transparently with tax obligations and are less likely to engage in tax avoidance or evasion [27]. This helps increase government revenue, enabling the state to implement more effective redistribution and social safety net policies [28].

Empirical studies have provided supporting evidence for this relationship. For instance, Rasche et al. [29] found that CSR has a negative correlation with GINI at the national level. Reinecke and Donaghey [30] emphasized that CSR/accounting activities can both facilitate and hinder workplace dialogue, which is crucial for wage outcomes. Meanwhile, Jiang and Yin [31] argued that sustainability accounting plays an important role in addressing GINI primarily through its influence on wage transparency and the legitimacy of pay practices. This effect is expected to be even

more pronounced in developing and emerging economies in Asia, where state institutions remain weak and social safety nets are incomplete. However, caution is warranted when applying these expectations to the Asian context. As Chapple and Moon [21] pointed out, CSR practices in Asia carry distinct characteristics, shaped by traditions of family governance, the dominant role of the state, and the uneven development of civil society. Belal and Owen [22] also warned that in many developing countries, sustainability disclosure may be more symbolic than substantive. Therefore, the impact of sustainability accounting on GINI in emerging Asian economies cannot be taken as inevitable and must be empirically tested within specific institutional contexts.

In this context, private-sector initiatives aimed at improving wages, working conditions, and community support can exert a significant influence on narrowing the wealth gap. Based on the above arguments, the study proposes the first hypothesis as follows:

**H<sub>1</sub>.** *The adoption of SAP is negatively associated with GINI.*

### 2.3 The moderating role of control of corruption

According to Institutional Theory, organizational behavior—including SAP—is profoundly influenced by the institutional environment in which it operates. The quality of institutions, particularly the level of CoC, can either reinforce or undermine the effectiveness of sustainability activities. To clarify the mechanisms through which CoC may moderate the relationship between sustainability accounting and inequality, this study proposes four plausible micro-level transmission channels, grounded in North's [10] institutional theory regarding the role of formal rules and enforcement mechanisms.

*First, the labor law enforcement channel.* Sustainability accounting requires firms to disclose information on compensation policies, working conditions, and human capital development. However, in environments with weak CoC, firms can easily bribe labor inspectors to circumvent regulations on minimum wages, overtime, or occupational safety [32]. In such cases, even though sustainability reports express commitments to fair wages and benefits, low-income workers continue to be exploited and the income gap remains unaddressed. Conversely, in countries with effective corruption control, monitoring and enforcement mechanisms compel firms to honor their commitments, turning report declarations into concrete income redistribution actions.

*Second, the tax compliance channel.* One of the key mechanisms through which socially responsible firms contribute to reducing inequality is tax compliance, which increases government revenue for redistribution [27, 28]. However, corruption in the tax system facilitates tax evasion through bribery of tax officials [33]. In such circumstances, firms may simultaneously declare tax compliance in their sustainability reports while actually engaging in tax evasion, thereby depleting government resources for redistribution and perpetuating inequality.

*Third, the environmental justice channel.* Corruption enables firms to bribe environmental regulators to circumvent regulations on waste treatment and emissions. The consequence is that pollution tends to concentrate in low-income residential areas, where communities lack the resources and political voice to protest [32]. Healthcare costs and livelihood degradation caused by pollution

disproportionately burden the poor, exacerbating inequality, while corporate sustainability reports continue to present formal environmental compliance.

*Fourth, the information credibility channel.* In corrupt environments, the quality of auditing and information verification is severely compromised. Civil society organizations, independent media, and oversight bodies are often constrained in their operations or neutralized [11]. This weakens the stakeholder pressure mechanism, which is the foundation of Stakeholder Theory. When information in sustainability reports is unreliable and no one monitors it, commitments cannot be translated into action, and the impact on income distribution is nullified.

In summary, the four proposed transmission channels provide a theoretical basis for understanding how corruption may systematically disrupt the mechanisms through which sustainability accounting generates social impact. We emphasize that these channels represent plausible explanatory mechanisms rather than mediation effects directly identified by the empirical analysis of this study. In countries with high levels of corruption control, all four channels are expected to function effectively: labor laws are enforced, tax obligations are met, the environment is protected, and information is rigorously monitored. In such settings, sustainability accounting is more likely to serve as a genuine tool for creating social value. Conversely, when corruption is pervasive, sustainability reports may become mere formalities that produce no change in income distribution.

This argument is supported by prior empirical studies. For instance, Rasche et al. [29] demonstrated that national-level corruption diminishes the credibility and value of CSR activities. Similarly, El Ghouli et al. [34] showed that strong political institutions (including effective corruption control) enhance the positive impact of CSR. Sustainability accounting can reduce inequality by detecting and facilitating remediation of unequal pay practices, but the transformation from information disclosure to actual redistribution depends on institutional capacity and enforcement integrity, in which CoC plays a central role [35-37]. This moderating effect is expected to be particularly pronounced in Asian countries, where there are large disparities in the level of corruption control and law enforcement capacity across nations. Accordingly, this study proposes the second hypothesis:

**H<sub>2</sub>.** *The negative relationship between SAP and GINI is stronger in countries with higher levels of CoC.*

## 3. RESEARCH METHODOLOGY

### 3.1 Sample and data collection

The study employs an unbalanced panel dataset of developing and emerging economies in Asia over an 18-year period from 2005 to 2022. This period was deliberately selected. The year 2005 marks the point at which global sustainability reporting initiatives, particularly the Global Reporting Initiative (GRI) guidelines, began to be more widely adopted in emerging markets. Ending the study period in 2022 allows us to capture important changes in the socioeconomic context, including the potential impacts of the COVID-19 pandemic on both corporate activities and social inequality.

The initial sample included all Asian countries with data available in the databases used. We excluded: (i) three high-

income East Asian economies—Japan, South Korea, and Singapore—to maintain regional comparability, as their highly developed institutional frameworks, mature capital markets, and advanced corporate governance systems render them structurally distinct from the emerging economies that constitute the analytical focus of this study; (ii) countries with prolonged political conflicts or severe data deficiencies across most variables during the study period. Notably, Kuwait is retained in the sample despite its high gross national income per capita, which is predominantly driven by hydrocarbon revenues rather than broad-based economic diversification. Kuwait's institutional and governance characteristics—including CoC scores consistently below the global mean during the study period—are more comparable to those of other developing and emerging economies in the sample than to the excluded East Asian economies. The final sample comprises 18 countries: Bangladesh, China, India, Indonesia, Kazakhstan, Laos, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Turkey, Iran, Kuwait, the Philippines, Sri Lanka, Thailand, and Vietnam. After removing observations with missing data for the key variables, our final analytical sample consists of 278 country-year observations. To mitigate the influence of extreme values, all continuous variables in the model were winsorized at the 1st and 99th percentiles.

Data were compiled from reputable and widely recognized sources:

Standardized World Income Inequality Database (SWIID): Provides data on income inequality. Source: <https://fsolt.org/swiid/>.

GRI Sustainability Disclosure Database: Provides data on the number of sustainability reports. Source: <https://www.globalreporting.org/> (accessed through GRI reports and databases).

Worldwide Governance Indicators (WGI): Provides data on institutional quality, including control of corruption. Source: <https://info.worldbank.org/governance/wgi/>.

World Development Indicators (WDI): Provides data for macroeconomic control variables. Source: <https://databank.worldbank.org/source/world-development-indicators>.

### 3.2 Variable measurement

The selection and measurement of variables were conducted carefully based on theoretical foundations and prior empirical studies, while also considering data availability and reliability in the context of Asian countries.

The dependent variable of the study is Income Inequality ( $GINI_{it}$ ), measured by the Gini index of disposable income (post-tax, post-transfer) of country  $i$  at year  $t$ , sourced from the SWIID database [38]. We selected the disposable income Gini index rather than the market income measure because it more accurately reflects the actual level of inequality experienced by citizens after government intervention through taxes and transfers. This measure is also consistent with the theoretical mechanism of the study, which posits that sustainability practices (such as tax compliance) affect the government's redistributive capacity, thereby influencing disposable income. The use of SWIID data ensures maximum comparability across countries and over time.

The main independent variable is Sustainability Accounting Practice ( $SAP_{it}$ ). We acknowledge that directly measuring the "quality" of sustainability activities at the macro level is extremely complex; thus, this study employs a proxy measure

for the degree of institutionalization and prevalence of sustainability accounting. Specifically,  $SAP_{it}$  is measured as the percentage of firms in the top 100 largest firms (by market capitalization) of country  $i$  at year  $t$  that publish a sustainability report in accordance with GRI standards. This choice was made because: (i) the largest firms have the most extensive socioeconomic impact and are typically the pioneers in adopting international standards; (ii) GRI is the most widely recognized and used sustainability reporting standard globally, making its use as a benchmark enhance cross-country comparability; (iii) in the context of emerging Asian markets where mandatory reporting requirements are still uneven, the voluntary adoption of a rigorous standard such as GRI constitutes a strong signal of a firm's commitment to transparency and accountability. Data were manually collected from the GRI database and annual reports of national stock exchanges.

We are fully aware that this measure reflects the prevalence (quantity) rather than the substantive quality of sustainability reports. In weak institutional environments, firms may publish reports that are merely cosmetic and do not reflect genuine commitment [22]. However, this limitation is partially mitigated by two factors. First, compliance with GRI standards requires a certain minimum level of disclosure, creating a quality floor for the reports. Second, the research model itself incorporates CoC as a moderating variable, which theoretically helps disentangle the impact of "substantive" reports (in countries with strong institutions) from "symbolic" reports (in highly corrupt countries). Additionally, to directly address concerns about quality, in the robustness checks section we employ an alternative quality-based measure: the proportion of firms whose sustainability reports have been externally assured by independent third parties, following the work of Simnett et al. [39] on the role of independent assurance in enhancing the credibility of sustainability information.

The moderating variable is  $CoC_{it}$ , measured by the CoC estimate from the WGI dataset. This index reflects perceptions of the extent to which public power is exercised for private gain, encompassing both petty and grand forms of corruption, as well as the "capture" of the state by elites and private interests. WGI is a composite measure derived from multiple sources, standardized with a global mean of 0 and ranging from approximately -2.5 (weak) to 2.5 (strong). Table 1 summarizes the variables used in the research model.

In addition to the main control variables, we supplement two important macroeconomic variables for robustness checks: Trade Openness ( $TRADE_{it}$ ) and Foreign Direct Investment ( $FDI_{it}$ ). These two factors are considered key determinants of GINI in emerging Asian economies [40] and need to be controlled for to ensure that the main results are not biased due to omitted variable concerns. Additionally, the variable  $SAP\_Assured_{it}$  measures the proportion of firms with sustainability reports verified by independent third parties and is used as an alternative measure reflecting report quality [39], addressing the limitation that the main measure captures only quantity.

### 3.3 Research model

To test the developed hypotheses, we employ a panel data regression model with fixed effects (Fixed Effects Model (FEM)). The FEM was selected because it allows for controlling unobserved, time-invariant characteristics of each

country ( $\mu_i$ ), such as culture, geography, or historical structures. These factors may simultaneously influence both sustainability accounting adoption and the level of inequality, and if left uncontrolled, would bias the estimates. Similarly,

the model also includes year fixed effects ( $\tau_t$ ) to absorb common shocks across the entire sample in each year, such as the 2008 global financial crisis or the COVID-19 pandemic.

**Table 1.** Definition and data sources of variables

Variable	Symbol	Definition and Measurement	Source
<b>Dependent Variable</b>			
Income Inequality	GINI <sub>it</sub>	Gini index of disposable income, scaled from 0 to 100.	SWIID 9.91
<b>Independent Variable</b>			
Sustainability Accounting Practice	SAP <sub>it</sub>	Percentage (%) of the top 100 largest firms (by market capitalization) that publish a sustainability report in accordance with GRI standards.	GRI, National Stock Exchanges
<b>Moderating Variable</b>			
Control of Corruption	CoC <sub>it</sub>	Control of Corruption index, an estimate ranging from -2.5 (weak) to 2.5 (strong).	WGI
<b>Control Variables</b>			
Economic Growth	GDPpc <sub>it</sub>	Natural logarithm of GDP per capita (PPP, constant 2017 international \$).	WDI
Education Level	EDU <sub>it</sub>	Secondary school enrollment (% gross).	WDI
Unemployment	UNEMP <sub>it</sub>	Unemployment rate (% of total labor force).	WDI
Government Expenditure	GOVEXP <sub>it</sub>	General government final consumption expenditure (% of GDP).	WDI
<b>Additional Robustness Check Variables</b>			
Trade Openness	TRADE <sub>it</sub>	Total trade (exports + imports) as a percentage of GDP.	WDI
Foreign Direct Investment	FDI <sub>it</sub>	Net FDI inflows as a percentage of GDP.	WDI
Quality-adjusted SAP	SAP_Assured <sub>it</sub>	Percentage (%) of the top 100 largest firms that publish an externally assured sustainability report in accordance with GRI standards.	GRI, National Stock Exchanges

Source: Authors' compilation based on the specified data sources.

The main regression equation for simultaneously testing H<sub>1</sub> and H<sub>2</sub> is specified as follows:

$$GINI_{it} = \beta_0 + \beta_1 SAP_{it} + \beta_2 CoC_{it} + \beta_3 (SAP_{it} \times CoC_{it}) + \delta_1 GDPpc_{it} + \delta_2 EDU_{it} + \delta_3 UNEMP_{it} + \delta_4 GOVEXP_{it} + \mu_i + \tau_t + \varepsilon_{it}$$

where,

$GINI_{it}$  is the Gini index of country  $i$  at year  $t$ .

$SAP_{it}$  is the proportion of firms reporting sustainability in country  $i$  at year  $t$ .

$CoC_{it}$  is the control of corruption index of country  $i$  at year  $t$ .

$SAP_{it} \times CoC_{it}$  is the interaction term between sustainability accounting and control of corruption, used to test the moderating role.

The vector of control variables includes  $GDPpc_{it}$ ,  $EDU_{it}$ ,  $UNEMP_{it}$ , and  $GOVEXP_{it}$ .

$\mu_i$  denotes country fixed effects,  $\tau_t$  denotes time fixed effects, and  $\varepsilon_{it}$  is the random error term.

### 3.4 Analytical methods

To ensure that the estimation results are robust and reliable, we conduct a multi-step analytical procedure.

First, we perform descriptive statistical analysis and Pearson correlation analysis to examine the basic characteristics of the data and the preliminary relationships among variables. The correlation matrix, along with the calculation of Variance Inflation Factor (VIF), is used to assess the risk of multicollinearity in the model.

Next, we conduct panel data regression. The Hausman test is performed to formally choose between the FEM and the random-effects model (REM). We prefer FEM based on the theoretical argument that country-specific inherent characteristics are likely correlated with the explanatory variables in the model. A potential concern in macro-level

panel data analyses is the existence of cross-sectional dependence, particularly in a dynamic and integrated economic region such as Asia. Economic or policy shocks in one country can spill over to others. If left unaddressed, this phenomenon, along with heteroskedasticity and serial correlation, can bias the standard errors of the estimates. To thoroughly address this issue, we employ Driscoll-Kraay [41] standard errors, a robust method that produces standard error estimates that are robust to very general forms of cross-sectional dependence, heteroskedasticity, and serial correlation.

Finally, to address potential endogeneity concerns (arising from reverse causality or omitted variable bias), we perform a series of robustness checks. Specifically, we re-estimate the model using the Two-step System Generalized Method of Moments (GMM) [42, 43]. This method uses lagged values of the model variables as internal instruments, effectively controlling for various sources of endogeneity. Given the small cross-sectional dimension of our panel ( $N = 18$ ), we adopt the collapsed instrument approach to prevent the instrument count from exceeding the number of countries, which would otherwise inflate the Hansen test and undermine its reliability. Endogenous variables are instrumented using lags starting from the second order. In addition, we conduct sensitivity analyses using alternative measures for the main independent variable and sub-sample analyses to examine the consistency of results.

Furthermore, we perform three additional tests to address other potential concerns. First, to check whether the results are affected by the omission of important macroeconomic controls, we re-estimate the full model with two TRADE and FDI, which prior studies have identified as having significant effects on GINI in emerging Asian economies [40]. Second, to address the concern that excluding the three high-income East Asian economies (Japan, South Korea, and Singapore) may reduce the variation in the CoC variable, we conduct a sensitivity analysis on an extended sample of 21 countries.

These three economies have notably high CoC scores (especially Singapore), so including them in the sample expands the range of variation in the CoC variable and provides a more stringent test of the moderating role. Third, to directly address the limitation that the SAP measure captures only report quantity rather than quality, we replace the SAP variable with SAP\_Assured, which measures the proportion of firms with sustainability reports verified by an independent external auditor [39].

All data analyses are performed using the specialized statistical software Stata version 17.0.

## 4. RESULTS

### 4.1 Descriptive statistics and correlation analysis

Table 2 presents the descriptive statistics for the variables used in the study. The analytical sample comprises 278 country-year observations from 18 Asian countries over the 2005-2022 period.

**Table 2.** Descriptive statistics

Variable	Observations	Mean	Std. Dev.	Min	Max
GINI	278	39.85	5.12	29.50	52.30
SAP	278	21.45	16.80	0.00	78.00
CoC	278	-0.48	0.65	-1.52	0.95
GDPpc	278	8.59	0.81	6.98	10.15
EDU	278	88.34	12.51	55.12	109.80
UNEMP	278	4.67	2.19	0.51	11.24
GOVEXP	278	14.72	3.88	7.91	25.43

Source: Authors' calculation based on the specified data sources.

The descriptive statistics reveal that the mean Gini index of the sample is 39.85, with a standard deviation of 5.12, reflecting considerable variation in GINI across Asian countries and over time. The SAP variable has a mean of 21.45%, indicating that the prevalence of GRI-standard reporting among the largest firms remains relatively modest. However, the wide range from 0% to 78%, coupled with a high standard deviation (16.80), indicates uneven yet substantial growth in this practice during the study period. Notably, the CoC variable has a mean of -0.48—a negative value—confirming that governance challenges and corruption remain pervasive issues in the developing and emerging countries in the sample.

Table 3 presents the Pearson correlation matrix among variables and the VIF to assess multicollinearity.

**Table 3.** Pearson correlation matrix and Variance Inflation Factor (VIF)

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	VIF
(1) GINI	1.000							
(2) SAP	-0.215***	1.000						1.58
(3) CoC	-0.358***	0.412***	1.000					1.75
(4) GDPpc	-0.189**	0.385***	0.521***	1.000				2.11
(5) EDU	-0.251***	0.298***	0.450***	0.588***	1.000			1.95
(6) UNEMP	0.115*	-0.088	-0.154**	-0.201**	-0.132*	1.000		1.23
(7) GOVEXP	0.092	-0.112*	-0.198**	-0.245***	-0.176**	0.057	1.000	1.34
								<b>1.66</b>

Source: Authors' calculation.

Note: \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

The preliminary correlation analysis provides initial indications consistent with the research hypotheses. Specifically, the correlation coefficient between SAP and GINI is -0.215 and is statistically significant at the 1% level, offering preliminary evidence in support of Hypothesis H<sub>1</sub>. This indicates that in settings with higher levels of sustainability accounting adoption, GINI tends to be lower. Similarly, CoC also exhibits a strong negative correlation with GINI (-0.358), consistent with the expectation that better institutions are associated with greater social equity. A noteworthy point is the positive and statistically significant correlation between SAP and CoC (0.412), suggesting that countries with cleaner institutions are also those where firms tend to adopt sustainability reporting practices more broadly.

Regarding model diagnostics, all pairwise correlation coefficients among independent variables have absolute values below 0.6, indicating no excessively tight linear relationships. More importantly, the VIF results show that all values fall below the commonly used threshold of 10, and the mean VIF is only 1.66. This confirms that multicollinearity is not a serious concern in our regression model.

### 4.2 Main regression results

To test the research hypotheses H<sub>1</sub> and H<sub>2</sub>, we employ a fixed-effects regression model (FEM) with Driscoll-Kraay standard errors. Table 4 presents the estimation results from four sequentially constructed regression models. Model (1) includes only the control variables to establish a baseline. Model (2) introduces the main independent variable (SAP) to test H<sub>1</sub>. Model (3) adds the moderating variable (CoC) to observe its independent effect. Finally, Model (4) is the full model with the interaction term (SAP × CoC) to test Hypothesis H<sub>2</sub>.

#### 4.2.1 Analysis of hypothesis H<sub>1</sub> test results

Hypothesis H<sub>1</sub> posits that the adoption of SAP is negatively associated with GINI. This hypothesis is tested by examining the coefficient of the SAP variable in Models (2) and (4). In Model (2), the coefficient of SAP is -0.009 with a standard error of 0.013, indicating that it is not statistically significant at any conventional level. This implies that, when considered independently, increasing the level of sustainability accounting adoption does not appear to produce a direct and significant effect on reducing GINI across the full sample. This result remains consistent in the full model (Model 4), where the SAP coefficient even reverses sign to positive (0.021) but remains entirely statistically insignificant.

**Table 4.** Fixed effects regression results

Variable	(1)	(2)	(3)	(4)
<b>Dependent Variable: GINI</b>				
SAP		-0.009 (0.013)	0.005 (0.011)	0.021 (0.014)
CoC			-2.315*** (0.602)	-2.240*** (0.618)
SAP × CoC				-0.091*** (0.028)
GDPpc	0.795 (0.512)	0.811 (0.519)	0.580 (0.475)	0.531 (0.482)
EDU	- 0.121** (0.054)	-0.118** (0.053)	-0.095* (0.050)	-0.089* (0.049)
UNEMP	0.302** (0.131)	0.306** (0.130)	0.325** (0.126)	0.334*** (0.123)
GOVEXP	-0.205* (0.110)	-0.198* (0.112)	-0.162 (0.104)	-0.153 (0.106)
Constant	43.551* ** (5.342)	43.370** * (5.381)	45.814** * (5.019)	45.198** * (5.105)
<b>Diagnostic Statistics</b>				
Observations	278	278	278	278
Number of countries	18	18	18	18
Year Fixed Effects	Yes	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup> (within)	0.338	0.340	0.421	0.455

Source: Authors' calculation.

Note: Driscoll-Kraay standard errors are presented in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively.

This finding does not support Hypothesis H<sub>1</sub> and suggests the possible existence of a significant gap between environmental and social responsibility disclosures and the actual actions of firms in the sampled countries. Firms may publish sustainability reports as a symbolic act to respond to stakeholder pressure or to improve their image, but these commitments are not translated into substantive actions capable of redistributing income, such as improving worker compensation or rigorously complying with tax obligations. When averaged across the sample, positive and negative effects cancel each other out, resulting in a statistically insignificant coefficient.

**4.2.2 Analysis of hypothesis H<sub>2</sub> test results**

However, the results become markedly different when the moderating role of CoC—the focus of Hypothesis H<sub>2</sub>—is considered. Model (4) introduces the interaction term SAP × CoC to examine whether the effect of sustainability accounting depends on institutional quality. The results show that the coefficient of the interaction term SAP × CoC is -0.091 and is highly statistically significant at the 1% level (p < 0.01).

This result provides strong evidence in support of Hypothesis H<sub>2</sub>. The negative interaction coefficient indicates that the negative relationship between sustainability accounting and GINI becomes stronger (more negative) in countries with higher levels of CoC. In other words, a clean institutional environment is not merely a contextual factor but serves as an essential "catalyst" that helps transform paper-based sustainability commitments into tangible social outcomes. In countries where laws are strictly enforced and

corruption is well controlled, firms are compelled to act on what they disclose. Activities such as paying fair wages, investing in community initiatives, and paying taxes in full are more effectively monitored and enforced, thereby producing a genuine impact on reducing inequality. Conversely, in settings where corruption is pervasive, sustainability reports are merely symbolic and have no effect. This finding explains the contradictions in prior studies and answers the core research question: Sustainability accounting only truly reduces inequality under conditions of strong institutions.

**4.2.3 Analysis of control variables**

The analysis of control variables in the full model (Model 4) is largely consistent with economic theory and prior research. Specifically, a high unemployment rate is found to significantly increase inequality (p < 0.01), while higher education levels help narrow the income gap (p < 0.1). Conversely, the effects of economic growth and government expenditure are not statistically significant, reflecting complex relationships that may be influenced by institutional factors and country-specific characteristics already controlled for in the model.

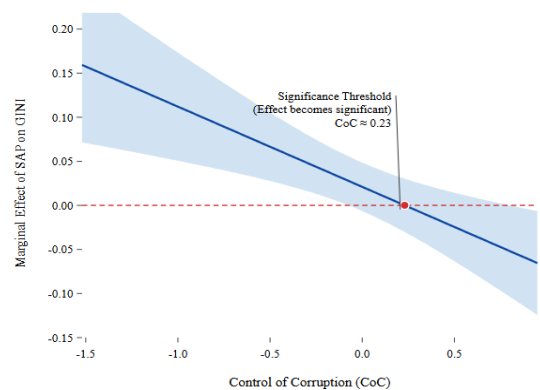
**4.3 Marginal effect analysis**

To clarify and visualize the moderating role of CoC, we conduct a marginal effect analysis of SAP on GINI at different levels of the moderating variable, CoC.

The marginal effect of SAP on GINI is computed as the partial derivative of the regression equation (Model 4) with respect to SAP:

$$\partial \text{GINI} / \partial \text{SAP} = \beta_1 + \beta_3 \text{CoC} = 0.021 - 0.091 \times \text{CoC}$$

This equation shows that the effect of sustainability accounting is not a constant but varies systematically depending on the value of the CoC index. Figure 1 depicts this marginal effect along with its 95% confidence interval.



**Figure 1.** Marginal effect of sustainability accounting practices (SAP) on income inequality (GINI) at different levels of control of corruption (CoC)

The graph in Figure 1 provides a compelling visual demonstration of Hypothesis H<sub>2</sub>. The horizontal axis represents the CoC, with higher values indicating cleaner institutions. The vertical axis represents the marginal effect of SAP on the GINI index. The dark blue line depicts the estimated marginal effect, and the light blue shaded area represents the 95% confidence interval. The red dashed line at

the value of 0 on the vertical axis marks the threshold of no effect.

The analysis of the graph reveals three important points:

The marginal effect line has a distinctly negative slope, moving from the positive region to the negative region as the CoC index increases. This confirms that the effectiveness of sustainability accounting in reducing inequality is not a universal phenomenon but systematically depends on institutional quality.

In countries with very low levels of CoC (negative CoC values, e.g.,  $\text{CoC} < 0$ ), the marginal effect line lies in the positive region and the 95% confidence interval encompasses the zero line. This means that in weak institutional environments with pervasive corruption, increasing sustainability reports not only fails to reduce inequality but may even have the opposite effect (though not statistically significant). This finding is entirely consistent with the argument about "greenwashing" or "social washing," where reports serve merely as image-polishing tools-symbolic acts masking non-substantive activities that produce no change in income distribution.

Conversely, when the level of CoC improves and surpasses an estimated turning point (approximately  $\text{CoC} > 0.23$  in our model specification), the marginal effect line enters the negative region and the entire 95% confidence interval lies below the zero line, indicating that the inequality-reducing effect of sustainability accounting becomes statistically significant and grows stronger as corruption control increases. It should be noted that WGI governance estimates contain standard errors and measurement uncertainty, so this threshold should be interpreted as an empirical approximation specific to our sample and model rather than a precise policy cutoff for cross-country comparisons.

#### 4.4 Robustness checks

To confirm that the main results of the study are not affected by endogeneity issues, measurement choices, or sample heterogeneity, we conducted robustness checks. The results of these tests are summarized in Table 5.

##### 4.4.1 Addressing endogeneity using the System Generalized Method of Moment method

A key concern in macro-level analyses is endogeneity, which may arise from reverse causality (e.g., high inequality may drive societal demand for corporate sustainability reporting) or from time-varying unobserved omitted variables. To address this issue, we re-estimated the full model using the Two-step System GMM method, which is designed to handle endogeneity in dynamic panel data. The results are presented in Column (1) of Table 5. To address the well-documented concern of instrument proliferation in small-N panels, we employed collapsed instruments with second-order and deeper

lags, yielding 15 instruments for 18 countries-well below the cross-sectional dimension, which ensures the reliability of the Hansen test. The Hansen test for overidentifying restrictions yields a p-value of 0.187, confirming instrument validity. The Arellano-Bond autocorrelation test reveals the presence of first-order autocorrelation AR (1) ( $p < 0.01$ ) but no second-order autocorrelation AR (2) ( $p = 0.254$ ), satisfying the model's prerequisites. Most importantly, the main results are robustly maintained. The coefficient of the interaction term  $\text{SAP} \times \text{CoC}$  remains negative (-0.085) and highly statistically significant ( $p < 0.01$ ), while the SAP coefficient remains insignificant. This confirms that our initial findings are not biased by potential endogeneity issues.

##### 4.4.2 Using an alternative measure for the independent variable

To ensure that the findings are not dependent on the specific measurement of SAP, we performed a sensitivity test using an alternative measure. Specifically, we replaced the SAP variable (percentage of reporting firms) with  $\text{SAP\_Abs}$ , measured as the absolute number of firms in the top 100 that publish sustainability reports in accordance with GRI standards.

The fixed-effects regression results with this alternative measure are presented in Column (2) of Table 5. Although the magnitudes of the coefficients change due to the different scale of the independent variable, the signs and statistical significance of the key coefficients remain entirely consistent. The coefficient of the interaction term  $\text{SAP\_Abs} \times \text{CoC}$  is -0.012 and is statistically significant at the 5% level. This finding demonstrates that the moderating relationship of CoC is not a random artifact of measurement choice but reflects a genuine economic mechanism.

##### 4.4.3 Sub-sample analysis

Finally, to examine whether the effect differs systematically across different groups of countries, we divided the sample based on institutional and economic characteristics. This analysis provides a more direct approach to confirming the hypothesized moderating mechanism.

First, we split the sample into two groups: "High CoC" (observations with CoC index above the sample median) and "Low CoC" (observations with CoC index below the median). The results in Columns (3) and (4) of Table 5 reveal a sharp contrast. In the group of countries with high levels of corruption control (Column 3), the SAP coefficient is -0.048 and is statistically significant at the 5% level. This indicates that in a sound institutional environment, sustainability accounting has a direct and significant effect on reducing GINI. Conversely, in the group of countries with low levels of corruption control (Column 4), the SAP coefficient is statistically insignificant and even carries a positive sign.

**Table 5.** Results of the structural integrity tests

Variable	(1)	(2)	(3)	(4)	(5)	(6)
	System GMM	Alternative SAP	High CoC	Low CoC	High-Mid Income	Low-Mid Income
<b>Dependent Variable: GINI</b>						
SAP	0.018 (0.019)		-0.048** (0.023)	0.011 (0.018)	-0.053** (0.025)	0.007 (0.016)
SAP_Abs		0.003 (0.005)				
CoC	-2.155*** (0.712)	-2.281*** (0.635)				

SAP × CoC	-0.085*** (0.031)					
SAP_Abs × CoC		-0.012** (0.005)				
GDPpc	0.602 (0.558)	0.549 (0.491)	0.498 (0.601)	0.612 (0.588)	0.515 (0.623)	0.589 (0.574)
EDU	-0.081 (0.058)	-0.091* (0.050)	-0.075 (0.061)	-0.102* (0.059)	-0.079 (0.064)	-0.098* (0.055)
UNEMP	0.315** (0.140)	0.339*** (0.125)	0.351** (0.155)	0.319** (0.148)	0.360** (0.161)	0.311** (0.142)
GOVEXP	-0.148 (0.121)	-0.159 (0.108)	-0.133 (0.132)	-0.171 (0.129)	-0.129 (0.140)	-0.165 (0.125)
Constant	44.872*** (6.024)	45.016*** (5.188)	47.110*** (6.854)	44.985*** (6.204)	48.021*** (7.112)	44.532*** (6.159)
<b>Diagnostic Statistics</b>						
Observations	260	278	139	139	142	136
Number of countries	18	18	16	17	15	16
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Country Fixed Effects	No	Yes	Yes	Yes	Yes	Yes
Adjusted R <sup>2</sup> (within)		0.452	0.481	0.435	0.495	0.428
Number of instruments	15					
Hansen test (p-value)	0.187					
AR(1) test (p-value)	0.008					
AR(2) test (p-value)	0.254					

Source: Authors' calculation

Note: Robust standard errors are presented in parentheses. The symbols \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively. Column (1) uses the two-step System GMM method with collapsed instruments and lags starting from the second order; standard errors are corrected for small samples using the Windmeijer [2005] finite-sample correction. The instrument count (15) is well below the number of cross-sectional units (18), ensuring the reliability of the Hansen test. The number of observations is reduced due to the use of lagged variables as instruments.

Column (2) uses fixed-effects regression with Driscoll-Kraay standard errors, where the independent variable is SAP\_Abs (the absolute number of reporting firms).

Columns (3)-(6) use fixed-effects regression with Driscoll-Kraay standard errors. Columns (3) and (4) analyze sub-samples based on whether the CoC index is above or below the median value. Columns (5) and (6) analyze sub-samples based on the World Bank's income classification. The number of countries in the sub-samples may differ due to the uneven distribution of data.

GMM = Generalized Method of Moment.

Next, we split the sample based on income level, using the World Bank's classification to create two groups: "Upper-Middle Income" and "Lower-Middle Income." The rationale is that higher-income countries tend to have more developed and effective institutions. The results in Columns (5) and (6) fully support this argument. The inequality-reducing effect of SAP is statistically significant only in the group of upper-middle-income countries (coefficient -0.053,  $p < 0.05$ ), while this effect does not exist in the lower-middle-income group.

Taken together, the sub-sample analyses provide an additional layer of convincing evidence, confirming that institutional quality, particularly CoC, is a prerequisite for corporate sustainability commitments to be transformed into the actual social outcome of reducing GINI.

#### 4.4.4 Adding macroeconomic control variables: Trade Openness and Foreign Direct Investment

A legitimate concern for studies on GINI in emerging Asian economies is the omission of international economic integration factors. To address this issue, we re-estimated the full model (Model 4) with the addition of two control variables: TRADE and FDI. The results are presented in Column (1) of Table 6. Both additional variables are statistically insignificant in the model (TRADE: 0.008; FDI: -0.031), indicating that after controlling for country-specific inherent characteristics through fixed effects, the separate effects of trade and FDI on inequality are no longer evident. More importantly, the coefficient of the interaction term SAP × CoC remains negative (-0.087) and highly statistically significant at the 1% level, with a magnitude nearly unchanged compared to the main model (-0.091). This suggests that the core result is not biased by the omission of international integration-related controls.

#### 4.4.5 Sensitivity analysis on an extended sample: Including high-income Asian economies

The main sample excludes Japan, South Korea, and Singapore due to their structurally distinct institutional and market characteristics. However, this exclusion may reduce the variation in the CoC variable, as these three economies have notably high CoC scores (especially Singapore, with CoC typically above 2.0). To examine whether this affects the results, we re-estimated the full model on an extended sample of 21 countries. The results in Column (2) of Table 6 reveal two noteworthy findings. First, the range of CoC variation is substantially expanded (from [-1.52; 0.95] to [-1.52; 2.32]), providing additional statistical power for estimating the moderating effect. Second, the coefficient of the interaction term SAP × CoC is not only maintained but is larger in absolute value (-0.103) and estimated with greater precision (standard error of 0.024 compared to 0.028 in the main model). This finding indicates that restricting the sample to emerging economies in the main analysis was a conservative choice, and the result is actually stronger when the spectrum of institutional quality is broadened.

#### 4.4.6 Using a quality-based measure for the independent variable: Externally assured sustainability reports

To directly address the limitation that the SAP measure captures disclosure quantity rather than quality, we replaced the SAP variable with SAP\_Assured, measured as the percentage of firms in the top 100 whose sustainability reports have been verified by an independent external auditor. External assurance is regarded as a strong signal of substantive commitment, as it requires firms to undergo objective scrutiny and bear significant verification costs [39]. The results in Column (3) of Table 6 show that, on its own, SAP\_Assured

has no statistically significant effect on GINI (-0.008,  $p > 0.10$ ), maintaining a pattern of results similar to the original SAP variable. However, the coefficient of the interaction term  $SAP\_Assured \times CoC$  is -0.142 and is statistically significant at the 5% level. Notably, this coefficient is substantially larger than the interaction coefficient in the model using the original SAP (-0.091), suggesting that when report quality is taken into account, the moderating effect of corruption control becomes even more pronounced. In other words, high-quality sustainability reports (those externally assured), when combined with a clean institutional environment, produce a greater inequality-reducing effect than non-assured reports.

Overall, these checks provide robust evidence that the decisive moderating role of CoC is a reliable finding, independent of measurement choice, sample scope, or the set of control variables.

**Table 6.** Additional robustness checks

Variable	(1) Additional Controls	(2) Extended Sample	(3) Quality- Based SAP
<b>Dependent Variable:</b>			
<b>GINI</b>			
SAP	0.018 (0.015)	0.014 (0.012)	
SAP_Assured			-0.008 (0.025)
CoC	-2.178*** (0.625)	-2.485*** (0.571)	-2.152*** (0.651)
SAP $\times$ CoC	-0.087*** (0.029)	-0.103*** (0.024)	
SAP_Assured $\times$ CoC			-0.142** (0.058)
GDPpc	0.493 (0.501)	0.625 (0.458)	0.558 (0.495)
EDU	-0.084* (0.050)	-0.098** (0.046)	-0.092* (0.051)
UNEMP	0.329*** (0.124)	0.312** (0.131)	0.321** (0.129)
GOVEXP	-0.146 (0.109)	-0.175* (0.098)	-0.161 (0.107)
TRADE	0.008 (0.011)		
FDI	-0.031 (0.024)		
Constant	44.821*** (5.215)	44.215*** (4.812)	45.523*** (5.348)
<b>Diagnostic Statistics</b>			
Observations	271	341	264
Number of countries	18	21	17
Year Fixed Effects	Yes	Yes	Yes
Country Fixed Effects	Yes	Yes	Yes
Adjusted R <sup>2</sup> (within)	0.462	0.479	0.438

Source: Authors' calculation.

Note: Driscoll-Kraay standard errors are presented in parentheses. \*, \*\*, and \*\*\* denote statistical significance at the 10%, 5%, and 1% levels, respectively. Column (1) re-estimates Model (4) with two additional control variables: Trade Openness and FDI. The number of observations is reduced to 271 due to missing data for some country-year pairs. Column (2) re-estimates Model (4) on an extended sample of 21 countries, which includes three high-income East Asian economies (Japan, South Korea, and Singapore) previously excluded from the main analysis due to structural institutional differences. The CoC range in this extended sample expands from [-1.52, 0.95] to [-1.52, 2.32]. Column (3) replaces SAP with SAP\_Assured (the percentage of top 100 firms publishing externally assured sustainability reports). The number of observations is reduced to 264 (17 countries) due to limited availability of assurance data for some countries and years.

## 5. DISCUSSION

### 5.1 Interpreting the main results in relation to theory and prior studies

The most notable finding is the absence of a statistically significant relationship between sustainability SAP and GINI when considered independently (Model 2, Table 4). This result appears to be at odds with the common interpretation of Stakeholder Theory [16], which posits that firms' attention to stakeholder interests (employees, communities) would inherently lead to more positive social outcomes, including reduced inequality. However, we argue that this result does not refute the theory but rather identifies an important limitation in applying it without considering contextual factors, particularly in the context of emerging economies. In many Asian countries, where pressure from international investors and consumers is mounting, the publication of sustainability reports may become an act of "symbolic compliance" or "greenwashing" rather than a substantive commitment [11, 12]. Firms may use reports as a marketing tool to polish their image without genuinely changing their policies on compensation, benefits, or tax compliance. This explains why, when aggregated across the entire sample with its great diversity in institutional quality, the substantive impact is obscured, resulting in a statistically insignificant coefficient. Our result thus contrasts with some studies such as Rasche et al. [29], Reinecke and Donaghey [30], and Jiang and Yin [31], but aligns with the strand of thought arguing that CSR commitments are often not translated into concrete actions in the absence of effective monitoring and enforcement mechanisms [34, 36, 37, 44].

### 5.2 Implications of the marginal effect: From statistical coefficients to economic reality

The complexity of this relationship is fully elucidated through the marginal effect analysis (Figure 1). The marginal effect equation  $\partial GINI / \partial SAP = 0.021 - 0.091 \times CoC$  shows that CoC is not merely a control variable but a "switch" that determines the direction and intensity of the effect. For example, consider Country A with weak institutions and widespread corruption (e.g.,  $CoC = -1.0$ ), and Country B with relatively clean institutions and respected rule of law (e.g.,  $CoC = 0.8$ ). Assume both countries experience a 10 percentage-point increase in the proportion of large firms publishing sustainability reports (SAP increases by 10).

In Country A, the estimated impact on the Gini index would be  $(0.021 - 0.091 \times (-1.0)) \times 10 = +1.12$ . This positive figure (though possibly not statistically significant) suggests that in a corrupt environment, sustainability reporting efforts not only fail to produce the expected positive results but may even be accompanied by rising inequality. This can occur when firms use reports to mask labor exploitation or tax evasion-behaviors that are more easily carried out in the presence of corruption.

Conversely, in Country B, the estimated impact on the Gini index would be  $(0.021 - 0.091 \times 0.8) \times 10 = -0.518$ . This means that with the same increase in sustainability reporting, Country B's Gini index is projected to decrease by approximately 0.52 points. This is an economically meaningful impact, indicating that sustainability commitments have been "activated" by a sound institutional environment. In this setting, reports on fair wages, community investment, and tax contributions are more likely to be monitored and enforced, compelling firms to "walk

the talk."

This analysis shows that policies promoting sustainability reporting in isolation will not be effective. They must be accompanied by institutional reform and anti-corruption efforts.

### 5.3 The moderating role of control of corruption: Evidence from sub-groups

The sub-sample analysis (Table 5) reveals that the contrast between country groups is very pronounced and entirely consistent with our theoretical framework.

In the group of countries with high levels of corruption control (Column 3), the SAP coefficient is negative and statistically significant (-0.048\*\*). This confirms that when the institutional environment is transparent and rigorously enforced, SAP genuinely contribute to reducing inequality. In these countries (such as Malaysia or, to some extent, Thailand in recent years), regulatory agencies, civil society organizations, and the media possess sufficient capacity and independence to monitor and hold firms accountable for what they disclose.

Conversely, in the group with low corruption control (Column 4), the effect of SAP becomes statistically insignificant. This reflects a common reality in many developing countries in Asia, where labor and environmental regulations are often merely nominal due to weak enforcement caused by corruption. In this context, a sustainability report that is perfect in form cannot prevent a firm from exploiting labor or colluding with officials to evade taxes.

Similar results when splitting by income level (Columns 5 and 6) further reinforce this argument. The inequality-reducing effect of SAP emerges only in the group of upper-middle-income countries, which tend to have more developed institutions and stronger state governance capacity. This indirectly confirms that economic development accompanied by institutional improvement is a necessary condition for private-sector initiatives to deliver broad social benefits.

### 5.4 Robustness from quality-based measures and the extended sample

The additional robustness checks (Table 6) further bolster the reliability of the core finding. Adding TRADE and FDI to the model does not alter the results, ruling out the possibility that the identified moderating relationship is merely a consequence of omitting economic integration factors. Notably, when the sample is expanded to include the three excluded East Asian economies, the moderating effect is even stronger (interaction coefficient -0.103 compared to -0.091 in the main sample). This confirms that the structural exclusion criterion adopted in the main analysis was in fact a conservative choice, and the initial result is not overstated.

The finding from the quality-based measure (SAP\_Assured) is particularly significant. The larger interaction coefficient (-0.142 compared to -0.091) indicates that when the measure reflects more substantive commitment (through accepting the cost of independent verification), the moderating effect of institutions becomes even more pronounced. This is entirely consistent with our theoretical framework: higher-quality sustainability reports, when placed within a clean institutional environment with effective monitoring mechanisms, generate

a stronger social impact. At the same time, this finding indirectly confirms that the limitation of the quantity-based main SAP measure does not compromise the validity of the core conclusion but can only make the estimate more conservative.

### 5.5 Research contributions

The research findings contribute to the existing body of knowledge in several important respects.

First, the study addresses a question in prior works concerning the link between CSR and macro-level outcomes. Rather than asking "does sustainability accounting work?" we pose a deeper question: "Under what conditions does it work?" By identifying CoC as a critical moderating variable, we provide an explanation for previously conflicting results and demonstrate that the effectiveness of sustainability practices is contingent upon the institutional context.

Second, this study is among the pioneering efforts to build an empirical bridge between aggregated micro-level activities (corporate sustainability reporting) and a critical macro-level social outcome (national income inequality). This opens a new research direction, moving beyond traditional analyses that focus solely on firm-level financial performance.

Third, this study further reinforces Institutional Theory [10]. Specifically, we demonstrate that institutions are not only important but also function as a core transmission mechanism, helping transform intentions into actions and commitments into outcomes. It is the quality of institutions that determines whether sustainability reports are a genuine value-creation tool or merely a symbolic exercise in impression management.

### 5.6 Limitations and future research directions

Despite achieving the stated research objectives and conducting extensive robustness checks, the study still has some limitations that must be acknowledged. The most significant limitation relates to the proxy measure for sustainability accounting. Although we employed an alternative assurance-based measure (SAP\_Assured) in robustness checks and obtained consistent results, the main measure (SAP) still captures prevalence rather than the substantive quality of report content. In the context of emerging economies where "greenwashing" may be widespread, this could potentially attenuate the true magnitude of the effect. Future studies could address this by using content analysis techniques or natural language processing (NLP) to evaluate the substantive quality of sustainability reports, thereby more clearly distinguishing between symbolic reports and those reflecting genuine commitment.

The second limitation stems from the macro-level analysis, which cannot fully disentangle the transmission mechanisms at the firm level. Although we proposed four micro-level transmission channels on a theoretical basis, directly testing each channel requires firm-level data that this macro-level study cannot provide. Future research could construct multilevel models to directly test how individual firms' commitments are translated into specific outcomes regarding wages, tax compliance, and community investment across different institutional contexts. Finally, extending the scope of research to other regions such as Africa or Latin America would help examine the generalizability of these findings.

## 6. CONCLUSIONS AND IMPLICATIONS

This study investigates the complex relationship between SAP and GINI in emerging Asian economies, thereby testing the moderating role of institutional quality. We demonstrate that, when considered independently, increasing adoption of sustainability accounting has no statistically significant effect on reducing GINI. This finding indicates that the transformation of corporate sustainability commitments into social benefits is not an inevitable process but depends on contextual conditions.

However, the core and most important finding of the study confirms that CoC is a decisive moderating variable. We conclude that in weak institutional environments with pervasive corruption, sustainability reports risk being merely symbolic acts. Conversely, effective CoC serves as an essential catalyst, compelling paper commitments to be translated into substantive actions, thereby generating the tangible social impact of reducing inequality. This finding not only resolves the contradictions in prior works but also affirms the central role of institutions in determining the social outcomes of corporate activities.

Based on these results, the study offers important implications for multiple audiences.

For policymakers: Policies encouraging or mandating sustainability reporting will not achieve their full potential unless accompanied by vigorous institutional reform and anti-corruption efforts. Rather than isolated solutions, a dual strategy-simultaneously promoting corporate transparency and strengthening the rule of law and enforcement capacity-is imperative for sustainability initiatives to generate genuine social value.

For investors and stakeholders: This study affirms that sustainability reports should not be accepted unconditionally, particularly in countries with high corruption risk. Investors need to integrate country-level governance risk into their ESG analysis models, treating institutional quality as an important indicator of the reliability of corporate commitments.

For corporate managers: The results underscore that substantive sustainability commitment requires more than publishing a report. In the long run, building sustainable shared value is inextricably linked to advocating for and contributing to a transparent business environment where responsible actions are fairly recognized.

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