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The Role of Sustainability Reporting and Governance in Achieving Sustainable Development Goals: An International Investigation

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Abstract: This article explores the role of sustainability reporting and governance in achieving national sustainable development goals. Sustainable development goals focus on economic, societal, and environmental issues and have been set up to address issues regarding environmental degradation, global imbalances, economic instability, social instability, and political instability. Using data from 42 countries over six years, the authors apply panel regression techniques and find a positive relationship between national governance and sustainability reporting; sustainability reporting and national sustainable development goals; sustainability governance and sustainability reporting. We found a negative relationship between national governance and sustainable development goals. Sustainability reporting is also found to mediate between national governance and sustainable development goals. Thus, this paper contributes to the body of existing knowledge by highlighting the role of governance and sustainability reporting in the achievement of sustainable development goals. The findings have several implications for governing bodies and decision-makers in government, including changing the governance model and taking strict actions against companies that fail to focus their attention on sustainability reporting. The findings involve society, business, and other stakeholders in sustainability reporting measures to achieve sustainable development goals.

Keywords: governance; sustainability governance; sustainability reporting; sustainable development goals

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1. Introduction

This paper aims to investigate the role of sustainability reporting and governance in achieving sustainable development goals. According to [1], national governance is indispensable for sustainable development. At the same time, the Global Reporting Initiative [2] claims that sustainability reporting advances sustainable development. Moreover, sustainability reporting frameworks provide foundations to ensure the achievement of national sustainable development goals (SDGs) due to embedded sustainability issues [3]. These associations have received scant attention in empirical research and demand further investigation [4,5]. This paper addresses this gap and calls for research.

In today's global economic forums, sustainable development is one of the most crucial issues, and it has been a significant area of research during the 20th and 21st centuries [6]. The term "sustainable development" was coined in 1987 by the United Nations World Commission on Environment and Development as a set of guiding principles for both environmental protection and socio-economic development [6–8]. Sustainable development (SD) ensures future generations will have better access to resources and will enjoy longer, healthier lives as compared to the current generation. Countries have moved from the model of economic growth to the new model of sustainable development due to issues such

as environmental degradation, disappointment with development efforts to eradicate global poverty and inequality, as well as economic and sociopolitical instability [9]. However, the difficulty of achieving SDGs persisted despite the new development of the economic paradigm. Governance and business entities in the country play a significant role in the (un)sustainable development of any nation, and both must be held accountable for their actions toward SD [10]. To address issues like climate change, inequality, poverty, ecosystem pollution, and other contemporary issues, the SDGs call for governments, professionals, businesses, and the general public to cooperate [11].

During the 20th and 21st centuries, it became clear that accounting and reporting play crucial roles in achieving the SDGs. For example, according to [12], accounting could contribute toward the achievement of SDGs by performing sustainability reporting practices for a variety of key stakeholders. Sustainability reporting (SR) discloses and conveys a company's environmental, social, economic, and governance practices and its progress toward the achievement of SDGs. Traditional accounting solely considers profit, but sustainability reporting considers environmental, social, economic, and governance issues, which are integral components of the SDGs. Therefore, given the growing importance of issues like food insecurity, education, inequality, unemployment, poverty, and climate change, which are prevalent in today's globalized world, SR is becoming more important as it aids in the achievement of the SDGs [13]. Theoretically, SR has a positive impact on the SD of the country [7,13–16]. However, empirically there is a shortage of literature regarding the impact of country-level SR and SD [16]. Therefore, drawing on the arguments of stakeholder theory, SR can be viewed as a bridge between various stakeholder groups in terms of a company's commitment to the environment [17,18]. Through better stakeholder accountability and management, SR can increase organizational sustainability performance which may be translated to the SD of the country at the macro-level. Furthermore, the majority of the studies highlight the impact of SR on organizational performance; however, the impact of SR on the SDGs of a country is not the focus of the existing literature [5]. Therefore, this study empirically explores the phenomenon that SR affects the SDGs of the country.

Similarly, there is a belief that good country governance promotes national SD. Good governance may further be categorized as general governance meant to rule the country and specific governance to achieve SDGs, referred to as sustainability governance [18]. Different studies have highlighted the impact of national governance in various ways. For example, Omri and Mabrouk [19] found that governance is positively related to human development and gross domestic product. Coimbra and Pereira [20] found a positive impact of governance on economic development. According to [21], governance is key to achieving economic development. Similarly, according to [22] governance has a positive impact on net savings per capita. A few studies, such as [23] and [24], also examined the impact of national governance on SR and suggested that the mediating role of SR is in the relationship between national governance and SD. However, further research should be conducted to ensure the consistency and reliability of the suggested relationship. Therefore, this research also examines the impact of national governance on the SR of the country. The evidence of mediating relationships exists at the organizational level. For example, the study of [25] pointed out that SR mediates the relationship between corporate governance and the stock performance of the companies. However, to the best of the authors' knowledge, none of these studies have pointed out the mediating role of country-level sustainability reporting in the relationship between national governance and SDGs. Thus this paper highlights the mediated role of SR between national governance and SDGs.

In contrast to the generic governance stated above, this study incorporates the concept of SG. Transition theory suggests that there should be a long-term, multi-dimensional, and fundamental transformation in a governance model through which established socio-technical systems move to more sustainable initiatives [26]. The general governance is broader in scope but still connected with SDGs. However, the concept of SG and SDGs

are closely related to each other [27]. SG includes economic, environmental, and social aspects [28]. However, one of the most important components of SG is environmental sustainability [29], which might result in SR and SDGs. Therefore, to make a substantial and unique contribution to the body of existing literature, this study also incorporates a novel notion of SG along with general governance.

This study employs transition theory in addition to the theoretical relationship between governance, SR, and SD, as stated above. Transition theory encompasses notions like coevolution, self-organization, and emergence, and is conceptually founded on three scientific strands: literature on governance [30], the theory of complex systems [31], and studies of innovation [32]. This theory suggests that there should be a structural transformation in societal systems for the SD of a country [33]. While the focus of transition was initially on changes in sociotechnical systems (e.g., energy, mobility, and agriculture), current developments have shifted the attention to societal systems more broadly (e.g., regions, cities, and sectors). Transition phenomena in social systems demand a holistic view of the interaction of human and nonhuman factors, not just on the social, cultural, institutional, and political levels, but also on the economic, ecological, and technical levels. Therefore, transition governance is critical to achieving the SDGs.

Transition governance transforms SG into a more proactive and targeted endeavor to achieve sustainability. Transition governance aims to tackle persistent issues in social systems and to establish a new governance model for SD that tries to focus on the opportunities for transformation inherent in an existing system [34]. Because of the two conflicting governance models stated above, this research may have implications for the relationship between governance, SR, and SD which need to be examined. Therefore, this paper examines the role of SR in the relationship between national governance and SD. This study contributes to the research on the importance of SR in the relationship between governance and SDGs, with practical implications for governments, regulatory agencies, companies, policymakers, and different stakeholders.

The role of accounting, particularly of country-level SR, in achieving SDGs has been the subject of debate in different studies. However, there is a lack of empirical evidence in the literature. Similarly, the importance of SR as a mediating variable in the relationship between governance and the SDGs of a country has not been explored in previous studies. This research fills this research gap. Furthermore, according to the best of the authors' knowledge, none of the previous literature empirically explored the impact of national SG on SDGs and country-level SR. This research also explores the empirical linkages between SG, SDGs, and SR. Finally, our study also provides empirical evidence of SR as a mediating variable in the relationship between national SG and SDGs.

2. Literature Review and Development of Hypotheses

Kanie et al. [18] argued that to achieve SGDs, society as a whole must undergo a radical transformation. They identified four key elements for attaining SD: decentralization, efficient governance, the formulation of specific goals, and an understanding of emerging societies and economic trends on a global level. Social welfare, environmental protection, and serving mankind collectively are referred to as governance [35]. According to [36], there is no one-size-fits-all governance framework that promotes SD. However, to ensure SDGs, national governance is an essential element. Existing studies examined the impact of governance on SD from different perspectives. For example, Guney [22] found a positive relationship between governance and SD in terms of net saving. Stojanović et al. [9] investigated the relationship between governance and several indicators of SD, notably the economic growth of the country. Furthermore, according to [37], the inclusion of new laws for the benefit of its population, a well-trained workforce, and an independent and powerful parliament all contribute to the country's economic development. Based on the literature mentioned above, none of the studies found an impact of national governance (average of six world governance indicators) on SDGs. Therefore, the researchers propose the following hypothesis.

Hypothesis 1: *There is an impact of national governance on the SDGs of the country.*

On the other hand, SG involves creating legislative measures that maintain or increase living standards for both present and future generations without unduly burdening those generations [28]. SG considers economic, environmental, and social sustainability. However, governance of environmental sustainability is among the most crucial elements of SG [29].

Environmental sustainability has been considered in several ways by numerous scholars. Examples are green governance [38], green entrepreneurship [39], and ecological entrepreneurship [40]. According to Goodland [41], the preservation of natural resources is ecological sustainability. Likewise, Alhaddi [42] pointed out that practices that have a net positive impact on the environment are referred to as environmental sustainability governance practices. Furthermore, according to Li et al. [43], environmental governance helps companies to avoid financial constraints, which leads to a sustainable economy and the development of the nation.

Due to the immense impact of environmental factors on people's quality of life, the area of environmental SG is crucial for sustainability practices and the SD of the country [44]. SG eventually promotes economic growth while minimizing detrimental effects on the environment, which results in the SD of the country [42]. International environmental agreements are among the most effective tools for states to carry out environmental sustainability pledges, such as biodiversity conservation, safe chemical and waste management, sustainable resource management, and reducing and reacting to environmental change [29]. As a result, a country's environmental SG reflects its policies, practices, standards, and goals for reducing its adverse environmental effects and fostering SD in the country.

Jensen and Lonergan [45] stated that researchers and academicians believed that building strong green institutions may improve nation-states by promoting inter- and intra-state stability, improving democratic practices [46], promoting SD of the country [10], along with reducing the negative effects of global capital market integration on the domestic economy [47]. Most importantly, in societies where environmental change is disruptive and fast, effective SG is essential for maintaining human security and economic development [48]. Moreover, Falkner [49] argued that environmental change in global governance represented a new recognition that environmental institutions are crucial to improving social and economic development in developing nations.

The existing literature on environmental SG gives an incomplete picture and is ambiguous while evaluating the effect of the country's SG on the SD of the country. Theoretically, several attempts have been made by various researchers to explain the impact of SG on SD. However, empirical research on this phenomenon has not been the focus of the existing literature, and it requires further attention. To the best of our knowledge, none of the previous studies consider SG and its impact on the SDGs of the country. Therefore, based on the literature, this paper posits the following hypothesis.

Hypothesis 2: *National SG has a positive impact on the SDGs of the country.*

The existing research on SR placed a greater emphasis on corporate governance indicators than on country governance indicators [50]. For instance, Falkner [51] pointed out environmental and social performance, ownership structure, company size, and economic performance as internal factors of SR, whereas visibility of the corporation, legal compliance, and country of origin were external components of SR. Similarly, Falkner [52] investigated how different dimensions of SR, such as the economic, social, and environmental dimensions, are the major determinants of SR. Likewise, Kouloukoui et al. [53] pointed out that company size and the origin of the country have a significant and positive relationship with corporate disclosure. Moreover, the form of ownership, media exposure, and company size are significant determinants of SR [54]. Similarly, Ali et al. [55] mentioned that the most important drivers of SR include corporate characteristics as well as political, social, and cultural factors in developing economies.

Delmas and Toffel [56] demonstrated that the institutional framework of a country shapes organizational activities by establishing the "rules of the game" that affect the effectiveness and legitimacy of organizational structure. In particular, it has been found that the firm's country of origin has an impact on the adoption, extent, and quality of SR [51,57–60]. Previous studies have shown that, even though governance is unique to each nation, there are still notable discrepancies in the amount of corporate social responsibility disclosure between nations [24,61]. Similarly, Garcia-Sanchez et al. [60] noted that there is a significant connection between SR disclosure and a country's institutional system.

Lääts et al. [50] mentioned that various researchers highlighted the variation in SR practices due to country-specific issues. As noted by [61], due to content priority, SR differs across Germany, the USA, the UK, and Australia. According to [62], in East Asian nations, there are discrepancies in SR practices. Likewise, Buhr and Freedman [57] mentioned that there are differences in the SR of the USA and Canada. Nevertheless, most studies have just documented the trend toward SR and have not considered the factors that could be accountable for these tendencies. Only a few studies (e.g., [24,25]) incorporated the national governance factors. However, they include only public sector companies in their results and ignored private sector companies. Therefore, this study proposes the following hypothesis to ensure the consistency and reliability of the findings.

Hypothesis 3: *There is a positive relationship between national governance and the SR of the country.*

Along with general governance, SG is often seen as prescriptive and normative and focused on the specific tools, strategies, and mechanisms that are seen to be helpful for SR [63]. SG transforms traditional governance into a proactive, focused endeavor to improve SR practices [64]. Therefore, SG seems to be a promising concept to promote sustainability disclosure in the country.

Andonova and Mitchell [65] explored the benefits of SG and found it increased creativity and variety in environmental policy and management; exchange of strategies, concepts, and tactics among different issues; and better alignment between issues being addressed and the solutions to solve them. Likewise, Pahl-Wostl [66] pointed out that SG is a mix of bottom-up and top-down approaches to increase resource management capacity for the adaptation of SR practices. SG aims to increase governments' capacity to make long-term decisions, leading to much more effective policy solutions. Dieng and Pesqueux [67] pointed out that SG considers innovative, proactive, and inclusive natural resource management by the government. Therefore, SG initiatives by governments and different stakeholders (e.g., corporate leaders, owners, managers, and academicians) are considered crucial means to improve SR disclosure [64].

Several studies [24,51–55,68–77] have examined the impact of corporate governance on the SR of the organization. Only a few studies (e.g., [24,25]) have examined the impact of country-level governance on the SR of the country. However, according to the best of the authors' knowledge, none of the studies have examined the impact of SG on the SR of the country. Therefore, based on the literature, this research proposes the following hypothesis.

Hypothesis 4: *There is a significant positive relationship between national SG and country-level SR.*

The outcome or impact of SR has been highlighted in several studies. For example, SR has a positive impact on the sustainable performance of the firm [70]. According to the findings of Kouloukoui et al. [53], firm disclosure has a significant impact on the financial performance of the company. De-Villiers and Marques [59] pointed out that firm disclosure has a positive impact on a firm's value. Similarly, Papoutsi and Sodhi [71] argued that SR has a significant impact on firms' sustainability. Moreover, Adams and Frost [72] highlighted the positive and significant impact of SR on firms' decision-making.

Alshehhi [73] found a positive impact of sustainability reporting on the financial performance of a business. Furthermore, many other studies have been conducted to find the impact or outcomes of SR. The most prominent impacts of SR recognized by

different researchers are the effect of SR on stock returns [74], the sustainable future of the company [75], the value of the company [76], strategic decision of the firm [72], firm reputation [77], and firms' return [73,78]. Theoretically, the SR of a country has a positive impact on the SDGs of the country [7,13–16,79], but this relationship has not received much attention in empirical research [4]. Therefore, this study proposes the following hypothesis.

Hypothesis 5: *There is a significant positive association between country-level SR and national SDGs.*

Many studies, such as [20,21,24,35,80–90], have argued that governance leads to SD. Likewise, other studies, such as [28,29,48,91,92], have highlighted the strong link between SG and SD. Moreover, SR has a positive relationship with SDGs [17,93–95], but previous researchers overlooked how governance impacts SD. Similarly, according to the literature, the researchers noted that SR is predicted by governance and SG, and SDGs are predicted by SR. Therefore, there could be some hidden, underlying process that explains how governance can result in SR, which can then lead to SDGs. Consequently, this study proposes that SR may act as a mediating variable in the relationship between national governance and SDGs.

In addition to empirical linkages, the study of Tavares and Rodrigues [85] demonstrated that institutional theory states how businesses are incorporated into sociocultural systems, which include a variety of institutions that have a significant impact on business decisions. Similarly to this, according to institutional theory, businesses should make an effort to meet the expectations of the institutional environment in which they exist [86]. Likewise, in developed economies, SR seems to be more closely linked to the institutions of stakeholder involvement or government intervention [87]. Delmas and Toffel [56] emphasized that institutional pressure to adopt environmental policies and processes is the main driving force behind sustainability reporting. Societies put more pressure on organizations to reveal economic, social, and environmental disclosure in countries where institutional and legal structures are strong [88]. Therefore, it seems that institutional theory is a promising means to build interactions among different stakeholders through SR. On the other hand, stakeholder theory suggests that companies should strive to meet the informational demands of all stakeholders, not just shareholders, by fostering valuable relationships and publishing sustainability reports [89]. Consequently, stakeholders feel satisfied with the company's sustainability disclosure performance and increase their investments, which may promote SDGs. Therefore, the institutional theory argues that institutional pressure was a factor in the development of SR. Additionally, the stakeholder theory proposes that businesses show their progress in sustainability disclosure by reporting to their stakeholders, which may lead to SDGs. Based on theoretical and logical reasoning as discussed above, this research posits the following hypotheses.

Hypothesis 6: *Country-level SR mediates the relationship between national governance and SDGs.*

Hypothesis 7: *Country-level SR mediates the relationship between national SG and SDGs.*

Conceptual Framework

Based on literature and hypotheses, this study developed the following conceptual framework to find the mediating role of country-level SR in the relationship between national governance, national SG, and the country's SDGs. Below, Figure 1 shows the conceptual model for the proposed hypotheses.

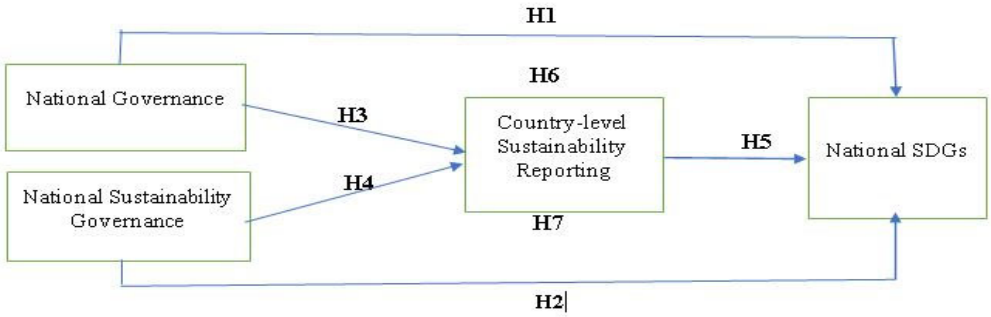

Figure 1. National governance and national sustainability governance are independent variables, whereas country-level sustainability reporting is a mediating variable. The national SDGs are a dependent variable.

3. Methodology

3.1. Research Design

A quantitative technique was used to conduct this study. The study's findings were compiled from a panel of 42 countries whose data related to the countries' SDGs, country-level governance, and sustainability reports and were accessible for the entire sample period. We considered data from the years 2014–2019 because SGDs' data were not available prior to 2014. Similarly, countries' sustainability reporting-related data were not available after the year 2019. For sustainability governance, we developed an index (e.g., the environmental sustainability governance index) based on the guidelines published by the World Economic Forum [90].

3.2. The Variables Measurement Method

3.2.1. National Governance

The World Governance Indicators (WGIs), which are published by the World Bank, were used as a proxy for country-level good governance from the year 2014 to 2019 [91]. According to [92], six core governance indicators—corruption control; stability of the political systems; rule of law; regulatory quality; voice and accountability; and effective government—have been incorporated into the WGIs since 1996 and have been applied to more than 200 countries. Karmani, et al. [23] used the average of six indicators as a measure of governance. Similarly, we used the average of six indicators of WGIs as national governance.

$$NG = \frac{\sum WGIs}{6}$$

NG = National Governance.

3.2.2. National Sustainability Governance

Tischler and Seelkop [28] argued that in terms of SG, the environmental policy and governance domain is particularly crucial given the wide-ranging impacts on people's standard of living. Thus, we measured national sustainability governance (NSG) in terms of environmental SG based on the World Economic Forum's guidelines [90]. To measure NSG, we considered renewable energy regulation (RER), energy efficiency regulation (EER), and environmental-related agreements in force. Each year, the Regulatory Indicators for Sustainable Energy issues ratings for almost all of the states in the world using a scale of 0 to 100 [93]. Consequently, to determine the score, the Regulatory Indicators for Sustainable Energy database was used for renewable energy and energy efficiency indicators from 2014 to 2019. For environmental or climate-related treaties, the cumulative number of international agreements that a country has signed out of a total of 29 was taken into consideration. A scale from 0 to 29 was created by the researcher, with 29 denoting the highest performance and 0 for the worst. The Gateway to Environmental Law database was used to compute the score for the period 2014 to 2019.

3.2.3. Sustainable Development

The SDGs, which were adopted by all UN members, provide an international agenda that all nations are required to implement. The sustainable development report is the first worldwide assessment of each nation's performance toward achieving SDGs [94]. A ranking of countries based on their overall SDGs index performance is provided in this report. This study considered the country's SDGs index as a proxy to measure the SD of the country. Data were obtained from the reports of SDGs published by Sustainable Development Solutions Network and Bertelsmann Stiftung for the period 2014 to 2019 to measure SD.

3.2.4. Country-Level Sustainability Reporting

To measure sustainability reporting (SR), this study uses the Global Reporting Initiatives (GRI) database. GRI is an international non-profit organization that creates and implements SR standards that are recognized and acknowledged by both government and private organizations everywhere in the world [95]. According to [96], the GRI database is a comprehensive, reliable, and plentiful source of sustainability reports. It maintains the data on SR for almost all countries each year. This study uses a number of sustainability reports to measure CSR published by respective countries through the GRI database for the period 2014 to 2019.

3.2.5. Global Competitive Index

The global competitive index (GCI) was used as a control variable in this study because it incorporates a variety of macroeconomic factors, including financial market development, health, market size, institutional infrastructure, education, training, labor market efficiency, business sophistication, and innovation [90]. The data were obtained from the database of the World Economic Forum for the period 2014 to 2019.

3.2.6. Gross Domestic Product

This study also used gross domestic product (GDP) per capita as a control variable due to its potential impact on the SD of the country. Similarly, Uyar et al. [23] also used GDP per capita as a control variable to find the impact of country-level governance on the SR, published by public sector enterprises in the countries. Therefore, this research also used GDP per capita as a control variable.

3.3. Econometric Models

In the above Equation (1), GCI and GDP are control variables, whereas CSR, AvgWGIs, and SG are independent variables, and SDGs are the dependent variable. *AvgWGIs* denote an average of six governance indicators that measure national governance. CSR denotes country-level SR and NSG stands for national sustainability governance. Similarly, the constant and error terms are denoted using α and ε, respectively.

$$SDGs_{it} = \alpha + \beta_1 GCI_{it} + \beta_2 GDP_{it} + \beta_3 CSR_{it} + \beta_4 AvgWGIs_{it} + \beta_5 NSG_{it} + \varepsilon \quad (1)$$

$$CSR_{it} = \alpha + \beta_1 GCI_{it} + \beta_2 GDP_{it} + \beta_3 AvgWGIs_{it} + \beta_4 NSG_{it} + \varepsilon \quad (2)$$

$$SDGs_{it} = \alpha + \beta_1 CSR_{it} + \beta_2 AvgWGIs_{it} + \varepsilon \quad (3)$$

In Equation (3), CSR is used as a mediating variable in the relationship between national governance and the SDGs of the country.

$$SDGs_{it} = \alpha + \beta_1 CSR_{it} + \beta_2 NSG_{it} + \varepsilon \quad (4)$$

Similarly, in Equation (4), CSR is used as a mediating variable in the relationship between national sustainability governance and the SDGs of the country.

4. Results and Discussion

4.1. Descriptive Statistics

The normality of the data set is examined using descriptive statistics. The range, lowest value, maximum value, mean value, and standard deviation are described in descriptive statistical analysis. Consequently, this study begins by presenting the mean value, maximum value, minimum value, and standard deviation of the data set. The analysis made use of 210 observations. The descriptive statistics for the variables are provided in Table 1.

Table 1. Descriptive Statistics.

	CSR	SDGs	GCI	GDP	AvgWGIs	NSG
Mean	131.226	69.085	5.402	3.097	0.643	51.647
Median	94.000	69.350	5.250	2.689	0.725	54.150
Maximum	874.000	85.600	9.210	25.162	1.860	71.000
Minimum	2.000	41.900	3.450	−3.545	−1.030	19.000
Std. Dev.	147.686	9.658	1.274	2.677	0.900	11.370

Note: CSR denotes country-level sustainability reporting, SDGs means sustainable development goals, GCI refers to the global competitive index, GDP stands for gross domestic product, AvgWGIs means national governance, and NSG denotes national sustainability governance.

The mean values of CSR, SDGs, GCI, GDP, AvgWGIs, and NSG were 131.22, 69.08, 5.40, 3.10, 0.64, and 51.65, respectively. The maximum values of CSR, SDGs, GCI, GDP, AvgWGIs, and NSG were 874, 85.60, 9.21, 25.16, 1.86, and 71, correspondingly. The lowest values for CSR, SDGs, GCI, GDP, AvgWGIs, and NSG were 2, 41.90, 3.45, −3.55, −1.03, and 19.00, respectively. This demonstrates that CSR varies due to voluntary and non-voluntary mechanisms because SR is mandatory in some countries and companies publish more sustainability reports than companies in other countries where SR is not mandatory. Similarly to this, national governance and NSG are greater in nations with strong institutional mechanisms than in those with weak institutional mechanisms.

4.2. Correlations

A correlation was run before the regression analysis to check out the possibility of multicollinearity. According to [97], if the correlations between predictor variables are greater than 0.90, then there is a definite problem of multicollinearity. However, some research suggests that for regression, the correlation between independent variables should be less than 0.70; otherwise, if the relationship among independent variables is 0.70 or higher, then they cannot be used in the same equation for regression. Table 2 shows the correlations among different variables.

Table 2. Correlations.

Variables	CSR	SDGs	GCI	GDP	AvgWGIs	NSG
CSR	1.000					
SD	0.138 *	1.000				
GCI	0.253 ***	0.553 ***	1.000			
GDP	−0.097	−0.257 ***	−0.096	1.000		
AvgWGIs	0.105	0.772 ***	0.489 ***	−0.189 *	1.000	
CSG	0.294 ***	0.6000 ***	0.472 ***	−0.078	0.578 ***	1.00000

Note: *** represents a 1% significant level and * represents a 10% significant level. CSR denotes country-level sustainability reporting, SD means sustainable development, GCI refers to the global competitive index, GDP stands for gross domestic product, AvgWGIs means national governance, and NSG denotes national sustainability governance.

The relationship between CSR and SDGs was significant and positive at a 10% level. Similarly, the SDGs have a significant and positive relationship with GCI, AvgWGIs, and NSG at a 1% level. However, SDGs had a significant relationship with GDP at a 1%

level. At a 1% level of significance, CSR has a significant and positive relationship with NSG and GCI. Likewise, GCI has a significant and positive relationship with AvgWGIs and NSG at a 1% level of significance. Moreover, the NSG has a significant and positive relationship with AvgWGIs at a 1% level of significance. However, the correlation among all independent and control variables is less than 0.70, which shows the non-existence of multicollinearity. We also applied the variance inflation factor (VIF) criteria to determine the existence of multicollinearity. Buallay et al. [98] and Gujarati [99] argued that a VIF greater than 10 denotes a multicollinearity issue between the independent and control variables of interest. The VIF results suggested that there was no problem with multicollinearity.

4.3. Regression Analysis and Discussion

The stationarity of the data was examined before regression analysis. To check stationarity, we used the unit root test and applied [100] criteria. The test results indicated that all variables were stationary at level. Therefore, the data were suitable for further regression analysis.

Using the panel data technique, the Lagrange multiplier (LM) approach is used to assess homogeneity or heterogeneity among cross-section units [101]. The test can be viewed as an extension of the Breusch-Pagan test. Therefore, first, we applied common pooled regression to check homogeneity or heterogeneity. However, the LM test was significant (p = 0.0000), indicating that the fixed-effect (FE) model or random-effect (RE) model is the most appropriate choice for testing hypotheses. We used the RE model to test the hypotheses and applied Hausman criteria to determine whether the FE model or RE model is appropriate for testing hypotheses. Results indicated that the FE model is suitable because the value of Hausman was significant at a 5% level of significance. Therefore, the following Table 3 shows the results of the FE model using cross-section as a fixed dummy variable. The dependent variable is national SDGs index.

Table 3. Regression Results of SDGs, National Governance, National Sustainability Governance, and Country-level Sustainability Reporting.

Variable	β	S.E	VIF
GCI	1.544 ***	0.386	3.482
GDP	−0.206	0.246	1.049
CSR	0.027 ***	0.009	2.839
AvgWGIs	−15.962 ***	7.971	3.852
NSG	0.783 ***	0.146	4.021
Cross-section Fixed (Dummy Variables)			
R^2	0.770		
Adj. R^2	0.759		
F-stat	127.069 ***		
DW stat	2.151		

Note: (*** means $p < 0.05$). CSR denotes country-level sustainability reporting, GCI refers to the global competitive index, GDP stands for gross domestic product, AvgWGIs means national governance, and NSG denotes national sustainability governance.

Table 3 shows that national governance has a significant (β = −15.962) but negative impact on SDGs. GCI and GDP served as the control variables in the regression model. The model was highly significant as shown by the F-stat. Thus, the first hypothesis was partially accepted. However, the findings contradicted our proposed hypothesis but were backed up by a few studies (e.g., [18,102,103]). They pointed out that the existing form of governance, meant to rule the country, is entirely incompatible with governance through goals. Governance through goals requires an effort to bring together a wide group of stakeholders, including representatives from the industry sector, cities, researchers, indigenous groups, and many others, to identify common issues and develop solutions to achieve SDGs. The results validated the relevance of transition theory. According to

transition theory, to accomplish the SDGs, there must be a structural transformation and participation from all stakeholders at all levels [33]. The findings indicate that to achieve SDGs, national governments must switch from their current style of governance by rules to governance through goals.

On the other hand, NSG has a significant and positive (β = 0.783) impact on SDGs. The second hypothesis was accepted. The findings were consistent with the theoretical argument of earlier research (e.g., [29,92]) which indicated that NSG initiatives have a significant role in achieving SDGs through the active engagement of different stakeholders at all levels. Thus, this paper proves an empirical linkage between NSG and SDGs. The findings confirm the theoretical justification of transition theory, which claims that there should be a transition governance model to achieve the SDGs. Because the goal of transition governance is to address enduring problems in social systems and create a new governance framework for SDGs that strives to concentrate on the possibilities for systemic change inherent within the existing structure of a country [34]. As a result, NSG practices must be incorporated into the institutional structure of a country.

Furthermore, from the results in Table 3, CSR has a significant and positive (β = 0.783) impact on the SDGs. Thus, the hypothesis that CSR has a significant and positive impact on SDGs is accepted. The findings confirm the theoretical argument of previous research [7,13–16], that SR has a positive effect on SDGs and provides frameworks to achieve SDGs [3]. The findings were in line with the previous research that sustainability reporting has a positive impact on strategic decision of the firm [72], stock returns [74], the sustainable future of the company [75], the value of the company [76], firm reputation [77], and firms' return [73,78]. Likewise, the findings were also in line with the previous research of [16]. Results validated the arguments of stakeholders' and institutional theory.

Table 4 reveals the results of the FE model that NSG has a significant and positive (β = 3.38) impact on CSR. In the model, GDP and GCI served as the control variables. The regression model was highly significant, demonstrating the model's validity as indicated by the F-statistics. The results were in line with the previous study, which found that corporate governance has a significant and positive impact on organizations' social responsibility [104,105]. The findings were consistent with previous research, which found that countries environmental SG positively affected SR disclosure across Europe [106]. Likewise, the results were also in line with the previous literature that showed environmental governance performance has a significant and positive impact on the voluntary disclosure of companies [107]. The findings corroborated and validated the stakeholders' theory. The stakeholder theory fosters connections between various economic players. Stakeholder theory states that organizations in a country are required to build trusting connections with all of their stakeholders, not just shareholders, and work to resolve their concerns and meet their informational needs through SR practices. In this way, SR is seen as a link between stakeholders and society in terms of a company's SR practices. Consequently, stakeholders are more likely to have faith in a government when it implements SR measures. According to the findings, governments must protect the long-term viability of the social, economic, and ecological systems in their societies through SR practices in the country. Federal and local government actors typically take a leadership role in promoting sustainability infrastructure through legislation and political support to formulate, exchange, and implement sustainability measures in a country.

Results also demonstrated that national governance has a significant and positive (β = 212) impact on CSR. Thus, the hypothesis that national governance has a significant and positive impact on CSR was accepted. Findings were in line with earlier research by [23]. They noted that national governance has a significant and positive impact on CSR. Moreover, the results were consistent with earlier research that demonstrated corporate governance has a significant impact on SR in Indonesia's listed banks [108]. According to [109], the strong governance system of the country has a significant impact on companies' SR. The findings corroborated the theoretical justification of institutional theory, which claims that corporations must abide by the institutions of the country in which they conduct

business [110]. According to [111], traditional reporting, on the other hand, is insufficient to communicate with stakeholders about an organization's activities. Therefore, based on the findings, this research recommends that the national government urge businesses to raise SR practices. Consequently, confidence among stakeholders and other players will rise, boosting the country's productivity and investments. International legislators, regulatory bodies, governments of all countries, heads of public and private companies, as well as other stakeholders, are urged to place greater emphasis on governance, which will increase SR practices in their countries.

Table 4. Regression Results of Sustainability Reporting, National Governance, and National Sustainability Governance. **Dependent Variable**: Sustainability Reporting.

Variable	β	S.E	VIF
GCI	2.504	3.484	2.874
GDP	−3.518	2.026	1.082
AvgWGIs	212.187 ***	52.721	2.976
NSG	3.376 ***	0.742	3.988
Cross-section Fiexed (Dummy Variable)			
R^2	0.830		
Adj. R^2	0.819		
F-stats	49.018 ***		
DW stat	1.811		

Note: (*** means $p < 0.05$). CSR denotes country-level sustainability reporting, SD means sustainable development, GCI refers to the global competitive index, GDP stands for gross domestic product, AvgWGIs means country-level governance, and CSG denotes country-level sustainability governance.

4.4. Mediation Analysis

Table 5 shows the summary of results for mediation. The analysis made use of 210 observations.

Table 5. Summary of Results for Mediation. Number of observations: 210.

Direct Effects (DV = SDGs)	Path A (DV = CSR)	Path B (DV = SDGs & IV = CSR)
AvgWGIs	β = −15.962 ***	β = 212.187 *** β = 0.027 ***
NSG	β = 0.783 ***	β = 3.376 ***

Note: (*** means $p < 0.05$). AvgWGI denotes national governance, NSG refers to national sustainability governance, and CSR means country-level sustainability reporting.

We examined the mediating impact of CSR in the relationship between country-level governance and SDGs using the Sobel test [112]. Above, Table 5 shows there were significant relationships among independent, dependent, and mediator variables that meet the criteria of [113]. For example, we found that national governance has a significant (β = −15.9626 ***) but negative impact on SDGs; however, CSR has a positive impact (β = 0.027653 ***) on SDGs. Likewise, national governance has a significant and positive impact (β = 212.187 ***) on CSR. The Sobel test's statistical findings revealed that the inclusion of country-level sustainability reporting as a mediator considerably (T = 2.0328; $p = 0.04$) reduced the negative direct impact of national governance on SDGs. Therefore, the hypothesis that CSR mediates the relationship between national governance and SDGs was accepted. Findings were consistent with the previous literature that suggested sustainability reporting mediated the relationship between corporate governance and companies' stock returns [25].

Findings also validated the arguments of stakeholders' and institutional theory. As a result, the institutional and stakeholders' theory seems to act as a bridge among various stakeholders. Findings have several policy implications for the government, decision-

makers, regulators, and other stakeholders. Based on the findings, the government and other stakeholders must focus on SR to achieve the SDGs.

We also found that CSR also mediates the relationship between NSG and SDGs. Table 4.5.1 shows that NSG has a significant impact (β = 0.783 ***) on the SDGs. Similarly, NSG has a significant impact (β = 3.376 ***) on CSR. Moreover, CSR has a positive impact (β = 0.027 ***) on SDGs. All of the above-mentioned relationships meet the criteria of [113]. We tested the mediation using the Sobel test [112] which revealed that the relationship between NSG and the SDGs is mediated by CSR (T = 2.98; p = 0.002). Results were in line with earlier research that claimed SR mediated the link between corporate governance and stock returns of corporations [25].

The results also confirmed the applicability of transition theory in real-world settings, supporting the model of NSG. The goal of NSG is to address challenges that are persistent in social systems and to create a new model of governance for SDGs that strives to concentrate on the possibilities for systemic change that are already present. Transition theory argues that there must be a structural reform in the existing model of governance. Therefore, governments and other economic actors must focus on SG efforts that support and promote the SDGs via SR practices in a country.

5. Conclusions and Practical Implications

This study was conducted to find out the role of sustainability reporting and governance in the achievement of national SDGs. Findings showed a significant and positive impact of SR on SDGs. Similarly, the study found that country-level governance has a significant but negative impact on SDGs. It was interesting because, according to the findings, the current governance model is a bureaucratic style of governance, which is also called governance through rules which is entirely different from governance through goals. As a result, the findings suggest that structural transformation at all levels is required to achieve the SDGs. The governance model should be shifted from governance through rules to governance through goals. Moreover, it was revealed that the SR of the country mediated the relationship between governance and SDGs. Therefore, this paper concluded that country-level sustainability reporting is crucial for achieving the SDGs. Thus, it is suggested that decision-makers, governments, corporate executives, and other stakeholders concentrate on SR issues and require businesses to show their disclosure performance in a country.

SG, which is a more closely related concept to SDGs, has a significant and positive impact on the SDGs. Therefore, this paper highlighted the importance of and provides empirical evidence of NSG in the achievement of SDGs. The study also found that NSG has a significant and positive impact on SR. Likewise, we found that CSR mediates the relationship between NSG and SDGs. It is consistent with the argument of transition theory. According to transition theory, structural reforms are required if the SDGs are to be accomplished. Hence, the study concluded that SR has a mediating role in the relationship between NSG and SDGs. As a result, it is recommended that policymakers, governments, and corporate leaders adopt and implement the SG model in a way that encourages SR in the country, resulting in the achievement of the SDGs.

6. Contributions and Future Research Recommendations

This study contributes both empirically and theoretically to the existing literature. This study found a positive impact of country-level sustainability reporting on the national SDGs. As a result, empirical evidence suggests that sustainability reporting has a significant and positive impact on the national SDGs. The study also discovered that sustainability reporting plays a mediating role in the relationship between national governance and SDGs. Thus, it provides empirical evidence that country-level SR has a significant positive role in the relationship between national governance and SDGs. Results suggested that there was a positive and significant impact of national sustainability governance on country-level SR and national SDGs and that country-level SR mediates the relationship between NSG and

SDGs. Therefore, the study also provides empirical support for the notion that NSG has a significant and positive effect on SR and SDGs, and that CSR acts as a mediator between NSG and SDGs. This research directly adds to the body of knowledge demonstrating the significance of sustainability reporting in achieving the SDGs (see, for example, [4,5,12]). Theoretically, this study confirms and validates the arguments of transition theory.

The study has several limitations, which may lead to future research. For instance, this study considers national governance, SR, NSG, and SDGs. However, other country-level factors such as the environmental performance index, social performance index, and policy performance index may be tested. Furthermore, this study did not make any distinction between developed and developing countries. Conversely, future research may be conducted to test the hypotheses in comparison to developing and developed nations. Theoretically, this study uses the argument of transition theory. Furthermore, other theories like meta-governance, polycentricity, network governance, and experimentalist governance may be tested to find the impact of different institutional-level factors on SDGs. Additionally, the study has considered the overall SDGs index. However, it could be beneficial to look at how each of the 17 SDGs will be affected separately by environmental, economic, and social factors.

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