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Impact of environmental performance on sustainable development: A case study of GCC companies

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ABSTRACT

This paper aims to study the impact of environmental performance on sustainable development. The objective of the study is to examine the causal relationship between environmental performance and sustainable development. Based on a standard model, which includes the variables of environmental performance and development, the type of relationship was determined in a selected sample of the GCC companies during the period between 2012 and 2018. In this context, dynamic panel data models, especially GMM, will be used. The results are expected to show that the level of environmental performance has a positive impact on the level of sustainable development by analyzing the impact of institutional attributes significantly on environmental performance. Finally, we should focus on the determinants of this effect by studying the environmental and social impacts on environmental performance.

1. Introduction

The traditional view of the role of companies as economic remains limited in maximizing shareholder profits. The thing that has been drawn to him is that sustainable development has become a feature of dynamic systems that maintain themselves over time. Sustainable environmental development aims at the long-term conservation of valuable environmental resources in an evolving humanitarian context. Given the importance of these topics, this issue has been addressed in several contexts. For example, the study of Al-Tuwaijri et al. (2004) suggested that "good" environmental performance, which is closely associated with "good" economic performance, as well as with more quantifiable environmental detection of specific pollution measures and accidents. Böhringer and Jochem (2007) concluded that country sustainability indicators provide a one-dimensional measure to assess country-specific information on the three dimensions of sustainable development: Economic, environmental, and social conditions. Attempts to develop a new analytical framework to assess spatial disparities between countries. It provides a combination of economic and "non-economic" (primarily social) aspects of a country's performance within an integrated logical framework.

On the contrary, Zhu et al. (2013) studied the relationship between environmental disclosure and corporate impressions management to investigate two subsequent hypotheses using a cross-sectional sample of corporate environmental disclosures in US annual reports. For Alt and Spitzeck (2016), this reinforces that OCBEs are increasingly being promoted as a means to complement formal practices in improving environmental performance.

Thus, the Environmental Sustainability Index (ESI) is a composite index that tracks a variety of socio-economic, environmental, and institutional indicators that characterize and influence environmental sustainability at the national level. Given these reasons and concerns from the previous literature review in this context, such as the studies of Echavarren (2017), Jamali et al. (2017), and Chikalipah (2017). Our contribution tries to answer the question of the impact of environmental performance on sustainable development. We will rely on a pilot model of the Environmental Performance Index and its relationship to sustainable development. We will also discuss the experimental results of a sample of GCC companies during the period 2012 to 2018. In this context, we ask the following question: What is the impact of environmental performance on sustainable development?

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2. Literature review

Organizational citizenship behaviors for the environment (OCBEs) are increasingly advocated as a means of complementing formal practices in improving environmental performance (Alt and Spitzeck, 2016). Based on a content analysis of 533 Chinese listed companies, this study examines how corporate environmental performance affects not only the level of detail of a company's environmental disclosures but also what information is disclosed (Meng and Ashby, 2014). Mavragani et al. (2016) focused on examining the extent to which the openness of a market economy and the quality of the institution affect environmental performance. The majority of the current studies focus on the Environmental Kuznets Curve and the level of economic growth.

Further, Alt and Spitzeck (2016) had adopted a capability perspective and proposed that a firm's employee involvement capability translates into environmental performance through the manifestation of unit-level OCBEs and that this relationship is amplified by a shared vision capability and found a positive relationship between top-down environmental initiatives and bottom-up behaviors.

Also, the results of Meng and Ashby (2014) showed that

- Both poor and good performers have more disclosure than the median (i.e., "mixed") performers, which provides empirical evidence to support a nonlinear relationship between corporate environmental performance and environmental disclosure;
- Poor performers disclose more soft information on environmental performance than good performers, and good performers disclose more solid information; and
- Although poor performers increase disclosure after being exposed as environmental violators, they avoid disclosing negative environmental information, such as the violation and the associated penalties.

This study provides additional evidence for a nonlinear relationship between environmental performance and disclosure in emerging markets and suggests environmental disclosure may not be a valid signal to differentiate good performers from poor performers in contemporary China.

For Mavragani et al. (2016), by applying factor analysis, an empirical model of the Environmental Performance Index is estimated, suggesting that there is a significant positive correlation between a country's economic growth, the openness of an economy, high levels of effective governance, and its environmental performance.

The study of Gallego-Álvarez et al. (2014) tried to analyze the environmental performance of countries and the variables that can influence it.

At the same time, they performed a multivariate analysis using the HJ-biplot, an exploratory method that looks for hidden patterns in the data, obtained from the usual singular value decomposition (SVD) of the data matrix, to contextualize the countries grouped by geographical areas and the variables relating to environmental indicators included in the environmental performance index.

These results confirm that the selected indices are consistent with previous studies, suggesting that environmental performance increases in line with economic development and that good governance increases a country's levels of environmental protection. Almeida and García-Sánchez (2017) explained that by using an ecological composite index as the dependent variable and focusing on two national dimensions: Sociopolitical characteristics and economics. Environmental performance is measured using the Composite Index of Environmental Performance (CIEP) indicator proposed by García-Sánchez et al. (2015). Echavarren (2017) analyzes the effect of environmental degradation, the affluence hypothesis, and the post-materialist theory to assess the environmental concern of individuals in 51 countries His results support the degradation hypotheses, where the importance of water scarcity in a country and national biodiversity are the major variables that explain individual environmental concern among all the indicators of environmental degradation. The affluence hypothesis is rejected, and the post-materialist theory is supported only at the individual level.

More specifically, the study of Husted and Sousa-Filho (2017) examined how the governance of sustainability projects as collaborative, in-house, or outsourced projects, affect corporate environmental, social, and governance (ESG) performance.

Hypotheses are developed that collaborative sustainability projects achieve the greatest levels of ESG performance, followed by in-house projects, and then outsourced projects.

However, Tamazian and Rao (2010) investigated the linkage between not only economic development and environmental quality but also financial development and institutional quality. We employ the standard reduced-form modeling approach to control for country-specific unobserved heterogeneity and GMM estimation to control for endogeneity. Jamali et al. (2017) advanced an analytic framework to help better trace the meaning and practice of CSR in developing countries, which draws from an institutional logics approach combined with the Scandinavian institutionalism perspective on the circulation of ideas.

Chikalipah (2017) explored the impact of the institutional environment on the performance of 291 microfinance institutions in 34 sub-Saharan Africa countries during the period 2006 to 2014, by analyzing the unbalanced panel data using fixed effects and generalized method of moments (GMM) estimation techniques. The panel regression results demonstrate strong evidence that a strong

institutional environment has a positive effect on the performance of microfinance institutions in sub-Saharan Africa.

3. Empirical analysis

3.1. Data and methodology

The econometric model to be tested in this paper combines macroeconomic and institutional variables. This model can be written as follow:

$$EPI_{i,t} = \beta_0 + \beta_1 ESI + \beta_2 ESI^2 + \beta_3 GDPPC_{i,t} + \beta_4 TENC_{i,t} + \beta_5 RENC_{i,t} + \beta_6 \sum_{i=1}^{n} INST_{i,t} + £_{i,t},$$

where, GDPPC is the real gross domestic product growth per capita; TENC is the total final energy consumption; RENC is the share of renewable energy in total final energy consumption; INSTs are institutional variables. These institutional variables inform on the legal and the political system of our sample to investigate whether they affect environmental performance.

ESI is the environmental sustainability index, and ESI^2 is the square of the environmental sustainability index. We introduce in our model control of corruption (CCOR), regulatory quality (REGQU) government effectiveness (GOVEFF), and legal enforcement of contracts (RLAW). These institutional variables are ranged between -2.5 and 2.5. Where the value of -2.5 implies weak governance, and a value of 2.5 indicates strong governance.

The signs of β_1, β_2, β_3, β_4, β_5, and β_6 are expected to be positive and negative, respectively, in order to reflect the inverted U-shape pattern. Table 1 shows the definition of the variables.

Table 1: Definition of the variables

Variable	Definition	Measurement	Source
EPI	Environmental Performance Index	Index ranks	Knoema* (2002-2018)
ESI	Environment Sustainability Index	Index ranks	Knoema (2002-2018)
$(ESI)^2$	Environment Sustainability Index Square	Index ranks	Knoema (2002-2018)
GDPG	The annual percentage growth rate of GDP at market prices based on constant local currency.	GDP growth (annual %)	WDI** (2002-2018)
TENC	The Total Final Energy Consumption	Total final consumption excluding non-energy use	WDI (2002-2018)
RENC	Renewable Energy Consumption	The share of renewable energy in total final energy consumption (% in TFEC)	WDI (2002-2018)
INST	The institutional variables: Control of corruption *(CCOR)* Regulatory quality *(REGQU)* Government effectiveness *(GOVEFF)* Legal enforcement of contracts *(RLAW)*	These institutional variables are ranged between -2.5 and 2.5 Where the value of -2.5 implies weak governance and value of 2.5 indicates strong governance	WDI (2002-2018)

* Knoema Corporation; ** WDI= World Development Indicators

To test the relationship between Environmental Performance on Sustainable Development in the GCC countries during the period 2002-2018 for six (6) GCC countries, namely Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, and the United Arab Emirates.

3.2. Descriptive statistics

The statistics presented in table discloses the descriptive results of the different variables of the study. The average level of GDPG is 3.782 %, while the average level of ESI is 53.986%, with a maximum of 684.882 and a minimum of 32,251. The GDPG achieved an average of 3.782 % with a negative minimum of -4.562% and a positive maximum of 12.473%. The average level of Environment Sustainable index sets on the average of 53,986%, which lightly near the median with a value-added equal to 49,969%, and with a maximum value of 75,882%, and a minimum value is 32,251% For the variables (TENC), and (TENC), we achieve a similar remark to the point previously-cited: We are witnessing a positive mean equal respectively to 59.879% for TENC, and 23.216% for TENC. These values are close to the median, 3.285% and 3.231%, respectively. Finally, the Descriptive statistics results show positive coefficients for all the variables of the study in Table 2. As for the pooled results in Table 3, we release the following remarks: Firstly, we remark a positives correlation between EPI and the variables: ESI and CCOR. These correlations are described with low coefficients equal to -0.0358 and for the variable RLAW equal to 0.179. In the same case, we admired a negative correlation between ESISQ and the EPI and TENC.

Finally, the result shows that the level of correlation is high between the independent variables introduced in the econometric model. Therefore, we confirm the absence of multicollinearity.

3.3. Panel unit root tests

The panel unit root tests are a method that is estimated by using Dickey and Fuller (1979). Especially for the current study, we advance the Augmented Dickey-Fuller (F-ADF) unit root tests to check the stationary of each variable. After that, we used the augmented Dickey-Fuller (ADF) statistic. In this case, the null hypothesis support, the more negative, it is the stronger for the rejection of the hypothesis, and we demonstrate the existence of a unit roots at some level of confidence. In fact, the results of the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) were tested for the six variables of the model displays in Table 4.

Table 2: Descriptive statistics

	GDPG	ESI	ESISQ	TENC	RENC	CCOR	REGQU	GOVEFF	RLAW
Mean	3.782	53,986	60.253	59.879	23.216	2.011	1.632	0.179	0.115
Median	5.432	49,969	60.130	3.285	3.231	2.398	2.24	0.179	0.115
Maximum	12.473	75,882	86.000	74.050	34.523	1.751	6.927	4.589	3.259
Minimum	-4.562	32,251	44.040	9.214	14.627	-1.152	0.157	0.142	1.225
Std. Dev.	4.452	100,731	10.748	21.953	4.385	2.111	3.422	4.859	8.963
Skewness	-0.054	3,816	0.126	2.092	0.442	1.332	1.752	1.523	2.859
Kurtosis	2.983	20,058	1.689	6.237	3.115	3.874	15.045	2.652	7.563
Jarque-Bera	7.353	1396,892	5.273	82.766	2.348	45.409	8.428	7.523	9.520
Probability	0.035	0,000	0.072	0.000	0.309	0.000	0.000	0.075	0.062
Sum	452.225	5182,642	4277.990	2081.658	1648.331	213.807	42.435	74.793	85.056
Sum Sq. Dev.	1254.558	963933,100	8086.904	33736.890	1346.026	677.681	1686	22255	3256
Observations	120	120	120	120	120	120	120	120	120

Table 3: Correlation matrix

	EPI	ESI	ESISQ	GDP	TENC	RENC	CCOR	REGQU	GOVEFF	RLAW
EPI	1	0.623	0.956	0.362	0.423	0.523	0.632	0.476	0.505	0.179
ESI	0,948	1	0.936	0.852	0.952	0.662	0.652	0.677	0.496	0.179
ESISQ	-0,217	0,761	1	0.520	-0.623	0.163	0.456	0.478	0.502	0.181
GDP	0.051	0.269	0.652	1	0.126	0.362	0.389	0.479	0.499	0.182
TENC	0,506	-0,037	0.669	-0,089	1	0.715	0.852	0.481	0.502	0.183
RENC	0,236	-0,149	0.946	-0,305	-0,118	1	0.562	0.482	0.505	0.184
CCOR	.0512	0.752	0.676	-0.520	0.523	0.623	1	0.484	0.506	0.186
REGQU	0,061	0,135	0.669	-0,034	-0,001	0,355	0.478	1	0.525	0.188
GOVEFF	0,473	0,003	0.625	-0,158	0,184	0,201	0.322	0.489	1	0.192
RLAW	0.489	0.04	0.953	0.233	0.426	0.452	0,463	0.491	0.532	1

Table 4: Panel unit root tests

Tests	LLC	Prob	IPS	Prob	ADF-Fisher	Prob	PP-Fisher	Prob	Order of Integ
EPI	-3.274	(0.0005)	-2.425	(0.0076)	26.163	(0.0102)	28.85	(0.0041)	—
ΔEPI	-11.619	(0.000)	-9.482	(0.000)	82.116	(0.000)	113.87	(0.000)	I(1)
ESI	-3.822	(0.000)	-2.646	(0.004)	27.947	(0.005)	36.121	(0.000)	—
ΔESI	-15.670	(0.000)	-11.622	(0.000)	91.629	(0.000)	140.251	(0.000)	I(1)
ESISQ	1.167	(0.8784)	0.97	(0.8341	10.612	(0.5624)	40.792	(0.0001)	—
ΔESISQ	-3.725	(0.0001)	-8.793	(0.000)	78.957	(0.000)	109.816	(0.000)	I(1)
RENC	1.531	(0.9371)	2.287	(0.9889)	20.242	(0.0626)	5.735	(0.9288)	—
ΔRENC	-1.809	(0.0352)	-2.367	(0.009)	33.116	(0.0009)	21.313	(0.0414)	I(1)
TENC	-2.192	(0.0142)	-1.626	(0.0519)	17.425	(0.0649)	13.688	(0.1877)	—
ΔTENC	-5.277	(0.000)	-4.013	(0.0000)	37.049	(0.000)	38.336	(0.000)	I(1)
CCOR	-1.326	(0.0923)	-1.299	(0.0969)	16.193	(0.1825)	15.53	(0.2137)	—
ΔCCOR	-6.551	(0.000)	-5.358	0.000)	47.971	(0.000)	54.825	(0.000)	I(1)
REGQU	-1.438	(0.0843)	-2.565	(0.0052)	15.055	(0.1945)	19.788	(0.0712)	—
ΔREGQU	-7.246	(0.000)	-5.035	(0.000)	45.881	(0.125)	37.135	(0.0002)	I(1)
GOVEFF	0.145	(0.000)	10.185	(0.000)	36.36	(0.000)	17.85	(0.0003)	—
ΔGOVEFF	0.345	(0.000)	10.176	(0.9889)	37.80	(0.3653)	17.88	(0.1253)	I(1)
RLAW	0.147	(0.000)	9.8972	(0.009)	37.96	(0.2569)	18.12	(0.3625)	—
ΔRLAW	0.369	(0.000)	10.1035	(0.0519)	38.39	(0.1258)	19.52	(0.2569)	I(1)

Probabilities for the Fisher-type tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality. The choice of lag levels for IPS and Fisher-ADF tests are determined by empirical realizations of the Schwarz Information Criterion. The LLC and Fisher-PP tests were computed using the Newey-West automatic bandwidth selection and Bartlett kernel. The panel Unit Root Test is conducted within an individual and intercept

The results showed that in the level, the null hypothesis could not be rejected for all the variables for both the two-unit root test (ADF and PP). Finally, the variables EPI, ESI, ESISQ, GDPG, TENC, CCOR, REGQU, GOVEFF, and RLAW are not stationary at the level of 5%. And, the results rejected the null hypothesis of non-stationary. The unit-roots tests confirm that each variable is integrated of order one.

3.4. Cointegration test and results

The cointegration test aims to check whether it exists a long-run relationship association. Two statistics are used in the cointegration test of Johansen (1988); they are Trace test and Max-Eigen value. Table 5 presents the results of the trace and the maximum-eigenvalue tests from the Johansen (1988) Maximum Likelihood analysis. The results given in Table 5 below suggest the existence of one cointegration vectors at 5% of significance for the Trace test and for the Max-eigenvalue. This result indicates that there is a long-run association. In fact, the panel tests advance the cointegration results between the dimensions and groups when the dependent variable is economic growth, and empirically, the results prove the conditions of the rejection of the null hypothesis, which leads to noticing that economic growth is cointegrated for all the variables. These results are significant at the level of 5% for the two tests between the dimension (Pedroni's heterogeneous panel cointegration tests and Panel ADF-Statistic) this shows that the connections between the variables. We remark later some statistics results aren't significant for the results between groups such as for the panel and group versions of ADF-statistic and the group rho-statistic.

Finally, through the previously-cited results, we finish by the conclusion which supports the existence of a panel long-run equilibrium relationship among EPI, ESI, ESISQ, GDPG, RENC, TENC, CCOR, REGQU, GOVEFF, and RLAW.

Table 5: Panel Co-integration test of Pedroni (2004)

(Within-dimension)	Statistic	Prob.	Statistic	Prob.	(Between-group)	Statistic	Prob.
Panel v-Statistic	-0.7257	0.7660	-1.5584	0.9404	Group rho-Statistic	1.6818	0.9537
Panel rho-Statistic	0.6561	0.7444	0.9492	0.8289	Group PP-Statistic	-11.336	0.0000***
Panel PP-Statistic	-6.7469	0.0000***	-3.4555	0.0003***	Group ADF-Statistic	-6.1581	0.0000***
Panel ADF-Statistic	-5.8647	0.0000***	-3.5542	0.0002***			

*** the level of significance at 1%

The null hypothesis is that the variables are not cointegrated. Under the null hypothesis, all the statistics are distributed as standard normal distributions. The finite sample distribution for the seven statistics has been tabulated in Pedroni (2004). The P-values are in parentheses

3.5. Kao residual co-integration test

Table 6 presents the results of Kao's residual panel cointegration tests. The results of this table rejected the null hypothesis of no cointegration for the variables at the 1% significance level. Thereby, the results of Kao's residual panel cointegration tests reported in Table 6 rejected the null hypothesis of no cointegration for the EPI and the variables (ESI, ESISQ, GDPG, RENC, TENC, CCOR, REGQU, GOVEFF, and RLAW) at the 1% significance level. This indicates the existence of cointegration.

Table 6: Kao residual co-integration test

	t-Statistic	Prob.
ADF	-3.262	0.0006***
Residual variance	23.922	
HAC variance	16.971	

*** the level of significance at 1%

The long-run relationship between economic growth, ESI, ESISQ, GDPG, RENC, TENC, CCOR, REGQU, GOVEFF, and RLAW using the panel cointegration technique due to Pedroni (2004) reveals the following results: We use the results of panel fully modified OLS (FMOLS) exposed in Table 7 above. More specifically, the results of the single-equation estimation techniques prove;

Firstly, the average cointegration coefficient of environment performance EPI is equal to 1.239, and it is significant at 10%. This remark is identical for the variables ESI, GDPG, and TENC, with a positive coefficient respectively equal to 0.359, 0.715, and 0.032, with the exception for the variable RENC with a coefficient equal to -0.405 significant at the 10%.

Thus, we prove that a 1% increase in EPI leads on average to a 35.9% increase in the variable ESI. Also, we remark that a 1% increase in EPI leads on average to a 71.5% increase in economic growth and an increase of the variable TENC of 3.2%.

Finally, we note that a 1% increase in EPI leads to a decrease in -40.5% of the variable RENC as far as, we remark positive relations between environmental performance and the variable environment sustainability index ESI with a significant coefficient equal to 0.359 at 10%.

Through these evoked, we notice that a positive variation of environmental performance leads to a strong and positive variation to the variable environment sustainability index ESI, GDPG, and TENC. Also, we remark a negative variation to environmental performance EPI with the variable RENC. These last are significant at the level of 1% and 10%.

Table 7: Long-run estimates FMOLS and DOLS

EPI	Coefficient	Std. Error	t-Statistic	Prob.
ESI	0.359	0.447	-0.802	0.426
ESIQ	0.008	0.042	-0.179	0.859
EPI	1.239	0.213	5.808	0.000***
GDPG	0.715	0.338	2.117	0.039**
RENC	-0.405	0.396	-1.023	0.311
TENC	0.032	0.063	0.509	0.613
CCOR	0.052	0.052	2.125	0.047
REGQU	0.192	0.063	1.693	0.058
GOVEFF	0.235	0.359	0.852	0.138
RLAW	0.216	0.652	0.956	0.036
R-squared		0.604		
Adjusted R-squared		0.533		
S.E. of regression		9.389		
Long-run variance		61.044		

*** and ** indicate the level of significance at 1% and 5%

3.6. Granger causality test

As an introduction to the results, it is postulated that the Granger causality analysis served to examine the cause and effect of the relationship between the variables of the study and during the study period. The results of Granger causality and regression coefficient for the economic growth and all variable of the study; ESI, ESISQ, GDPG, RENC, TENC, CCOR, REGQU, GOVEFF, and RLAW, for all the sample composed by the GCC countries and during the period 2002-2018, are exposed in Table 8.

Indeed, our results show a unidirectional relationship of the sample GCC countries between economic growth and the variables; EPI, ESI, GDPG, RENC, and TENC at the level of 5%.

In addition, our panel Granger causality test results reported in Table 8, advanced that the variable EPI does not Granger cause ESI, with a significant level. Also, the results indicate that EPI has a positive impact on the variables; ESI, GDPG, and RENC. And, we prove a negative unidirectional relation with the variable TENC. This one isn't significant at the two levels 1% and 5%.

4. Discussion

The purpose of this paper is to understand the attitude of the impact of environmental performance on environmentally sustainable development. This relationship is studied based on the reaction of institutional variables such as the total final energy consumption (TENC, RENC), the environmental sustainability index (ESI), the control of corruption (CCOR), the regulatory quality (REGQU) government effectiveness (GOVEFF) and the legal enforcement of

contracts (RLAW). For our study, we are interested in the context of the GCC countries.

Table 8: Granger causality test

Null Hypothesis	Obs	F-Statistic	Prob.
EPI does not Granger Cause ESI	84	0,0408	0.9600
ESI does not Granger Cause EPI		3,7481	0.0279**
ESISQ does not Granger Cause EPI	84	0,0678	0.9345
EPI does not Granger Cause ESISQ		2,3540	0.0862*
EPI does not Granger Cause CO2E	90	6,3572	0.0027**
RENC does not Granger Cause EPI		1,2699	0.2861
EPI does not Granger Cause RENC	62	1,3215	0.2748
EPI does not Granger Cause TENC		0,2073	0.8134
TENC does not Granger Cause EPI	84	2,8910	0.0614*
EPI does not Granger Cause RENC		0,0352	0.9654
RENC does not Granger Cause EPI	84	3,4669	0.0360**

** and * indicate the level of significance at 5% and 1%

In fact, the studies of He et al. (2017) and Zhang et al. (2015) resulted empirically from the existence of a unidirectional and positive relationship between environmental performance and sustainable environmental development. Some other researchers focused on the study of the linkage between the environmental performance and institutional variables.

In which, the results were drawn by Böhringer and Jochem, (2007) and Sugiawan et al. (2019), indicated a positive interaction between the variables.

Actually, our research starts with the theoretical underpinning, which supports the problem of discovering the linkage between six key variables (GDPPC, EPI, ESI, TENC, and RENC) and the meaning of these relationships. The methodological tools of the research methods try to measure the influence of the environmental performance index on the other variables quoted above. We used the econometric approach embodied by the GMM method on a data panel composed of six GCC countries. The results prove positive unidirectional relations between environmental performance and the variable environment sustainability index ESI, GDP, and TENC. Also, the results advanced a negative unidirectional relation with the variable the environment performance index and Renewable Energy Consumption (RENC). These findings can also be associated with some implications for the GCC countries. These results confirm those found by He et al. (2017) and Miao et al. (2019).

5. Conclusion

The results of this study may be of great importance for GCC and Saudi companies as a whole, especially in light of the ongoing incentives to raise the level of investment in the environmental performance and in line with Vision 2030 These results can support Saudi companies in focusing more on the environmental side and giving it more attention The results of the research are an incentive to increase interest in natural resources and not to deplete them through sustainable development policies.

Compliance with ethical standards

Conflict of interest

The authors declare that they have no conflict of interest.

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