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The Success of Climate Change Performance Index in the Development of Environmental Investments: E-7 Countries

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Abstract. Climate change is considered to be one of the biggest problems acknowledged globally today. Therefore, the causes of climate change and solutions to this problem are frequently investigated. For this reason, the purpose of this study is to empirically examine whether the 'Climate Change Performance Index' (CCPI) is successful in increasing environmental investments for E-7 countries with the data for the period of 2008–2023. To achieve this aim, the Parks-Kmenta estimator was used as the econometric method in the study. The study findings provide strong evidence that increases in the climate change performance support environmental investments. High climate change performance directs governments and investors toward investing in this area; therefore, environmental investments tend to increase. The study also examined the effects of population growth, real GDP and inflation on environmental investments. Accordingly, it has been concluded that population growth and inflation negatively affect environmental investments, while GDP positively affects environmental investments.
Keywords: Climate change, environmental investment, inflation, economic growth, panel data.

1. Introduction

There is a broad consensus that the main cause of climate change is human-based greenhouse gas emissions from non-renewable (i.e., fossil) fuels and improper land use. Accordingly, climate change may have serious negative consequences as well as significant macroeconomic outcomes. For example, an upward trend of temperatures, the rising sea levels, and extreme weather conditions can seriously disrupt the output and productivity (IMF, 2008a; Eyraud et al., 2013). Due to the global climate change, many countries today see environmental investments, especially renewable energy investments, as an important part of their growth strategies. Until recent years, the most important priority of many countries was an improvement in the economic growth figures. Still, the global climate change and the emergence of many related problems are now directing countries toward implementing policies which would be more sensitive to the environment and

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would ensure sustainable growth rather than just increase the growth figures. (Baştürk, 2024: 327). The orientation of various countries to these policies has led to an increase in environmental investments on a global scale.

A relative rise of the share of environmental investments worldwide is not only a medium-term climate goal. It also brings many new concepts to the agenda, such as an increasing energy security, reduction of the negative impact of air pollution on health, and the possibility of finding new growth resources (Accenture, 2011; McKinsey, 2009; (OECD), 2011; PriceWaterhouseCoopers, 2008; Eyraud et al., 2013). Today, environmental investments have a significant share in energy and electricity production. According to the World Energy Outlook (2023), investments in environmentally friendly energies have increased by approximately 40% since 2020. The effort to reduce emissions is the key reason for this increase, but it is not the only reason. Economic reasons are also quite strong in preferring environmental energy technologies. For example, energy security is also fundamentally important in the increase in environmental investments. Especially in fuel-importing countries, industrial plans and the necessity to spread clean (i.e., renewable) energy jobs throughout the country are important factors (IEA WEO, 2023).

In economic literature, environmental investments are generally represented by renewable energy investments. Accordingly, Figure 1 below presents global renewable energy electricity production for 2000–2020. According to the data obtained from IRENA (2024) and Figure 1, the total electricity production has increased by approximately 2.4% since 2011, with renewable energy sources contributing 6.1% to this rate, while non-renewable energy sources contributed 1.3%. In 2022 alone, renewable electricity grew by 7.2% compared to 2021. Solar and wind energy provided the largest growth in renewable electricity since 2010, which reached 11.7% of the global electricity mix in 2022.

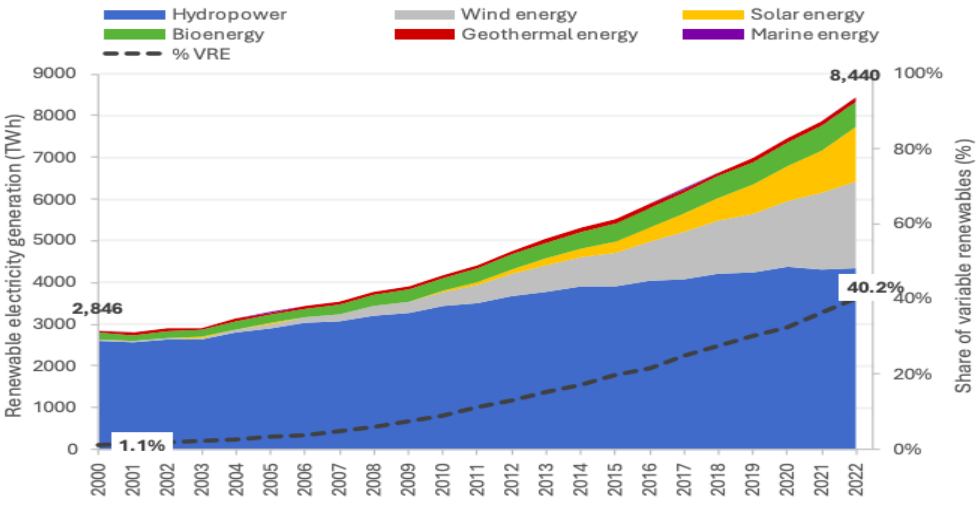

Figure 1. Global electricity production from renewable energy (2000–2022).

Source: IRENA, 2024

Figure 2 below presents renewable energy investments by technology between 2013 and 2022. As shown in Figure 2, photovoltaic solar. and terrestrial wind categories are dominating, accounting for 46% and 32% of the global renewable energy investment, respectively, during 2013–2022.

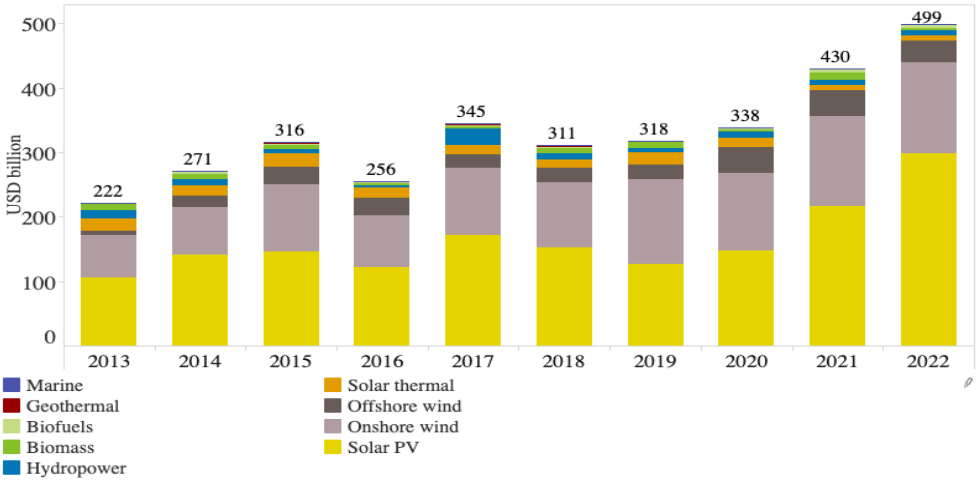

Figure 2. Renewable energy investments by technology (2013–2022).
Source: IRENA, 2024

Economic growth supported by environmental investments is impacted by the type and number of energy used to increase the national output. Thus, both the environmental friendliness of the energy used and the rise in energy efficiency is bound to reduce carbon emissions related to energy use and encourage economic growth (Hussain and Dogan, 2021). In this context, in order to minimize emissions and ensure sustainable economic growth, renewable energy sources should be used instead of fossil resources in energy use.

Increasing environmental investments on a global scale, especially a boost in renewable energy investments, is seen as a more comprehensive solution to the current global growth-development and environmental degradation balance. In this context, as a result of the latest Conference of the Parties held in Paris, namely, *COP21*, it was envisaged to make an agreement covering the processes after 2020, which is accepted as the end year of the Kyoto Protocol. On December 12, 2015, the Paris Agreement was adopted unanimously by the countries that are parties to the UN Framework Convention on Climate Change (Kaya, 2020). As a result of the Paris Agreement and the reports delivered by the Intergovernmental Climate Change Panels, international efforts to adapt to the action to combat climate change and global warming have increased, and awareness has been raised in this area (Irfan et al., 2021; Feng et al., 2022; Anser et al., 2020; Zhang et al., 2021; Huang et al., 2021; Fang, 2023). The rise in the demand for low-carbon energy sources in economies has been caused by environmental investments such as renewable energy

investments. The countries that are party to the Paris Agreement, commit to the way to achieve efficient energy systems through the spread of renewable energy technologies throughout the country (Bashir et al., 2021; Fang, 2023).

This study empirically examines the impact of the climate change performance on increasing environmental investments for E-7 countries. The climate change performance is expressed by the 'Climate Change Performance Index' (CCPI) developed by the German environmental and developmental organization *Germanwatch*. The index evaluates the climate protection performance of 63 developed and developing countries and the EU annually, and compares the data. Within this framework, CCPI seeks to increase clarity in international climate policies and practices, and enables a comparison of the progress achieved by various countries in their climate protection struggle. CCPI evaluates the performance of each country in four main categories: GHG Emissions (40% overall ranking), Renewable Energy (20%), Energy Use (20%), and Climate Policy (20%). In calculating this index, each category of GHG emissions, renewable energy, and energy use is measured by using four indicators. These are the Current Level, the Past Trend, the Current Level Well Below 2°C Compliance, and the Countries' Well Below 2°C Compliance with the 2030 Target. The climate policy category is evaluated annually with a comprehensive survey in two ways: as the National Climate Policy and the International Climate Policy (https://ccpi.org/methodology/).

Figure 3 below shows the world map presenting the total results of the countries evaluated in CCPI 2025 and their overall performance, including the four main categories outlined above.

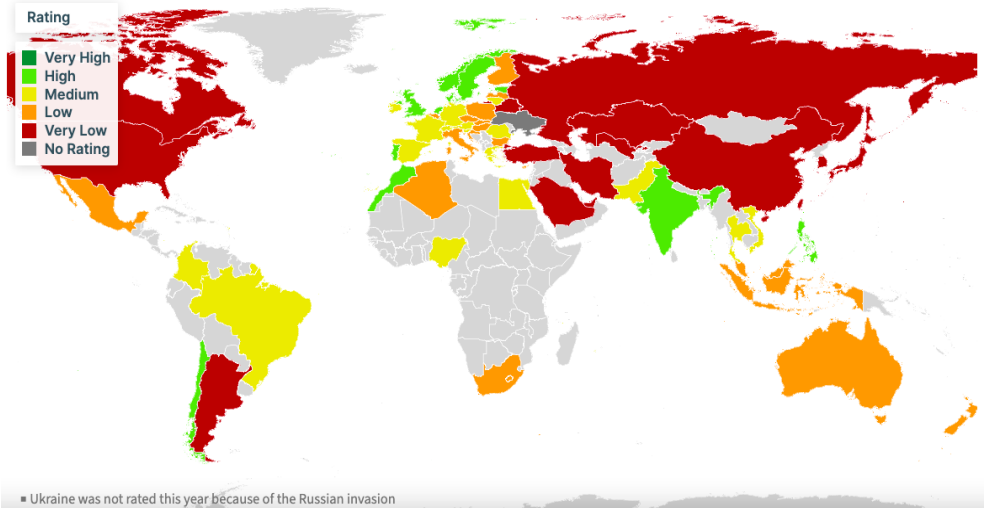

Figure 3. World map showing the total results and overall performance of the countries evaluated in CCPI, 2025.

Source: Climate Change Performance Index, 2025

As it can be seen from Figure 3, no country appears strong enough to receive a 'very high' score across all categories. Moreover, although Denmark continues to be the highest-ranking country in the index, but it still does not perform well enough to receive a '*very high*' score overall. On the other hand, India, Germany, the EU, and the G20 countries/regions will be among the highest-performing countries/regions in the 2024 index. When we look at Canada, South Korea, and Saudi Arabia, they are the worst-performing countries in the G20. On the other hand, it can be said that Türkiye, Poland, the USA, and Japan are the worst-performing countries in the overall ranking.

The climate change performance index is an important criterion because it indicates whether the change and progress in combating climate change is occurring across all countries at an important level. The index is important in answering various questions for countries under discussion. These questions are expressed below:

- In which stage are the countries in the categories in which the index is calculated?
- What policies should countries follow after seeing the stages in which they are in each category?
- Which countries are setting an example by truly combating climate change?

These questions also constitute the motivation for this study. The sample group for the study was selected as E-7 countries, which are called the Emerging Economies; this list consists of Türkiye, China, India, Russia, Brazil, Mexico, and Indonesia. The reason for selecting these particular countries is that they are undergoing a rapid development and transformation process, and are also believed to be influential in the future with their increasing share in the world trade volume, huge populations, and advances in technology.

Besides that, when the relevant literature has been examined, studies that empirically address the relative ranking of the climate change performance appear to be quite limited. In particular, there are almost no studies evaluating the climate change performance index for the sample group considered. Therefore, it is thought that this study will be of great importance in filling this gap in the literature.

The following section of the study, which aims to empirically examine whether the climate change performance is effective in developing environmental investments in E-7 countries, includes national and international selected literature review on the subject. Then, the model of the study and the variables chosen in this model are introduced. Then, the findings obtained in the study are shared, and the study ends with discussion and policy proposal.

2. Literature Review

2.1. Studies on environmental investment

The excessive use of fossil-based energy sources, considered non-renewable and dirty energy, along with industrialization, constitutes a large part of carbon emissions and is regarded as the main reason of climate change. Thus, countries have turned to renewable energy investments with the objective to minimize the reaction of climate change and

global warming, by introducing technologies which are considered more environmentally friendly and cleaner.

Global energy investments are estimated to exceed 3 trillion US dollars by the end of 2024, and 2 trillion US dollars of this amount will go to clean and environmentally friendly energy base technologies and infrastructure. Investment in environmentally friendly energy has been gaining speed since 2020, and the total expense on renewable energy, networks, and storage now represents a higher figure than the total spending on oil, gas, and coal (IEA, 2024).

When the energy economics literature is examined, since environmental investments are mostly represented by renewable energy investments, renewable energy investments studies and studies in related fields shall be discussed in this study section. One of the important studies in this field is the work of Eyraud et al. (2013). In the study, the authors analyzed the determinants of environmental and green (clean) investments for 35 developed and developing countries. Accordingly, they stated in the study that environmental investment has become the main driving force of the energy sector, and China has generally driven its rapid growth in recent years. In addition, in terms of the econometric results of the study, it has been found that environmental investments are supported by economic growth, a solid financial system suitable for lower interest rates, and higher fuel prices.

Fang (2023) examined the relationship between investments in the renewable energy sector, the economic complexity index, green technological innovation, industrial structure growth, and carbon emissions in 32 provinces in China for the period of 2005–2019 by using the GMM method. Based on the study results, the economic complexity index causes an increase in China's carbon dioxide levels. On the contrary, all of the following – the square of the economic complexity index, investments in clean energy, green technical innovation, and the industrial structure – were found to help decrease carbon dioxide emissions. Another important study in this field is the work of Masini and Menichetti (2013). The authors examined the non-financial sources of renewable energy investments in their study. Accordingly, the study results show that knowledge and confidence in technological competence positively impact renewable energy investments. In addition, trust in policy measures only impacts PV (Photovoltaic) and hydropower investments, whereas institutional pressure negatively impacts renewable energy investments. Finally, the study stated that experienced investors are more likely to fund innovations in renewable energy.

One of the important studies on renewable energy investments is the work of Ozorhon et al. (2018). To support and facilitate the decision-making process in renewable energy investments, the authors determined the main criteria affecting investors' decisions by reviewing the literature and examining sector-level practices. According to the findings, economic criteria, like policies and regulations, funds availability, and investment costs were the most important factors in the decision-making process for renewable energy investments. Xu et al. (2024) examined the relationship between the renewable energy investments and the renewable energy development with a threshold value analysis for China. According to the results, impact of the clean (renewable) energy investment on renewable energy development has a significant threshold value, and the general relation

between them is a 'V' type non-linear relation. At this point, the study suggests that the state should keep spending in the segment of investments in clean energy, increase the financial proficiency, and ensure an efficient financial infrastructure for clean energy in China.

2.2. Studies on Climate Change and their Impact on Economic Variables

The widespread use of fossil-based energy sources, considered dirty energy, continues to create a negative externality in carbon emissions despite the globally implemented policies like the Kyoto Protocol and the Paris Agreement (Rezai et al., 2021). The economic literature on climate change focuses particularly on the adverse effect of climate change on the economy. One of the important studies in this field is the study of Fan et al. (2019). In their study, the authors focused on the impact of climate change on the energy sector for 30 provinces in China and conducted their research with the help of a fixed-effect regression feedback model. As a result of the study, it was found that hot and low-temperature days positively affected the electricity demand.

On the other hand, Singh et al. (2022) examined the effects of climate change on agricultural sustainability in India with data from 1990–2017. On the grounds of the study, it was found that India's agricultural sector was negatively impacted by the climate change. In this regard, it is stated that India needs to take powerful climate policy action so that to reduce the adverse effect of the climate change and increase its sustainable agricultural development.

One of the important studies in this field is the study of Gallego-Alvarez et al. (2013). This study investigated how the climate change affects the financial performance with a sample of 855 international companies operating in sectors with high greenhouse gas/ CO_2 emissions from 2006–2009. The results reveal that the relationship between the environmental and financial performance is higher in times of economic crisis triggered by climate crisis. In other words, these results show that companies should continue investing in sustainable projects in order to achieve higher profits.

Kahn et al. (2021) examined the long-term macroeconomic impact of the climate change by using a panel data set consisting of 174 countries between 1960 and 2014. According to the findings, the amount of output per capita is negatively affected by temperature changes, but no statistically significant effect is observed for changes in precipitation. In addition, according to the study's results, the main effects of temperature shocks also vary across income groups. Alagidede et al. (2015) examined the effect of climate change on sustainable economic growth in the Sub-Saharan Africa region in their study. The study stated that the relationship between the real GDP and the climate change is not linear. In addition, Milliner and Dietz (2011) investigated the long-term economic consequences of the climate change. Accordingly, as the economy develops over time, and as progress is achieved, this situation will automatically be less affected by the adverse impact of the climate change. Structural changes made with economic development will make sectors more sensitive to the climate change, such as the agricultural sector, which would become

stronger and less dependent. Dell et al. (2008) examined the effect of climate change on economic activity. The study's main results are as follows: an increase of temperatures significantly decreases economic growth in low-income countries. Furthermore, increasing temperature does not affect economic growth in high-income countries. On the other hand, when examining the effects of climate change on the economy, the study of Zhou et al. (2023) is also fundamentally important.

Zhou et al. (2023) examined the literature on the effects of climate change risks on the financial sector. In the studies examined, it is generally understood that natural disasters and climate change reduce bank stability, credit supply, stock and bond market returns, and foreign direct investment inflows. In their study for Sri Lanka, Abeysekara et al. (2023) created a study using the general equilibrium model ORANI-G-SL with the objective to investigate the economic impacts of the climate change on agricultural production. The study findings suggest that reductions in the production of many agricultural products will lead to increases in consumer prices for these agricultural commodities, resulting in a decrease in the overall household consumption. The projected decrease in crop production and increases in food prices will increase the potential for food insecurity. Another important document in this field is the study by Caruso et al. (2024) examining the relationship between the climate change and human capital. The study findings reveal a two-way result regarding the effects of the climate change damages and the effects of climate change mitigation and adaptation on the human capital. Accordingly, the climate change has direct effects on health, nutrition and welfare, while changes in markets and damage to the infrastructure are expressed as indirect effects. In addition to these studies, the uncertainty of the climate change policies also exerts an impact on economic factors. Studies conducted in this context in recent years have also enriched the literature on the climate change. For example, Çelik and Özarslan Doğan (2024) examined the effects of uncertainty of the climate change policies on economic growth for the USA by using the ARDL bounds test. Their results confirmed the existence of a positive and statistically significant relationship between the climate policy uncertainty and economic growth in the USA.

3. Model Specification

This study empirically examines whether the climate change performance index successfully develops environmental investments in E-7 countries. Before examining the regression model created for this study in detail, the variables used in the model are defined in Table 1.

Each capacity addition to the environmental investments capacity also increases the energy investment in question. Therefore, many factors can be taken into account when evaluating the renewable energy capacity of specific countries or when investing in this area. At this point, the variables in the study were selected to represent three different dimensions which affect the renewable energy capacity. CCPI was selected as a variable to represent the environmental dimension, the population was used to represent the social dimension, and economic growth and inflation served to represent the economic dimension.

Table 1. Variables used in the model and their explanations

Variables	Explanation	Source of Origin	Reason and Logic Based on Literature
LnRE	Renewable energy installed power capacity (MW)	IRENA	
CCPI	Climate change performance index	IPCC database	CCPI, which shows whether the change and progress achieved in combating the climate change is realized homogeneously in all countries, aims to increase transparency in the international climate policies and practices, and to enable comparison of the progress made by countries in their climate protection efforts. Therefore, it is expected to show a positive relationship with the increase in environmental investments.
POP	Population Growth (annual)	WDI	Population growth is considered an important factor which increases the energy demand. At this point, the resources used to meet the energy demand caused by the increasing population and the policies implemented by the countries directly concern environmental investments.
LnGDP	GDP per capita (constant 2015 US dollar)	WDI	Economic growth and the income growth it ensures provide a greater opportunity to cover the costs of environmental investments. Therefore, the relationship between economic growth and environmental investment is expected to be positive.
INF	Inflation, consumer prices (annual %)	WDI	Inflation is often seen as an uncertainty, and it causes investors to hesitate in making decisions about the future. Thus, the uncertainty created by inflation is expected to negatively affect environmental investments.

3.1. Dependent Variable

In the study examining the effect of the climate change performance index on the development of environmental investments, renewable energy investments were preferred as the dependent variable to represent environmental investments. Economic literature defines various renewable energy investment criteria. These can be expressed as production, consumption, and installed power capacity. Therefore, a country's amount of renewable energy installed power capacity reflects the attitude towards environmental investments (Abban and Hasan, 2021). In recent studies, the installed power capacity, which expresses the maximum power output a generator can produce under ideal conditions, is used more frequently (Shrimali and Kniefel, 2011).

3.2. Independent Variable

The main independent variable used in the study is the 'Climate Change Performance Index' (CCPI), which represents the climate change performance created by the German environment and development organization *Germanwatch*. The index evaluates the climate protection performance of 63 developed and developing countries and the EU annually,

and compares these countries. In this context, the purpose of the Climate Change Performance Index to raise transparency in the international climate policies and practices. It also enables comparison of the progress made by countries in their climate protection efforts.

3.3. Control Variables

Since the economic policies implemented by each country constituting the panel in the study are different, it is thought that it would be more appropriate to add a set of control variables to the model. For this purpose, one of the control variables contained in the model is (1) the *Real GDP per capita* variable. A higher per capita income level means higher savings and, as a result, higher investment. Thus, since environmental investments are similar to other types of investments, the increase in income levels is expected to affect these investments positively. The second control variable of the study is (2) the *population* (POP) variable. As Abban and Hasan (2021) stated, population growth will also cause an increase in the energy demand. This may affect the demand for environmental investments. Another control variable is (3) the *inflation* (INF) variable. Inflation is expected to increase the cost of capital, which will have a negative effect on investments as inflation increases future uncertainties. This increases the price of the risks to be taken (Karaçor et al., 2011).

3.4. Model of the Study

The relationship between the climate change performance index and environmental investments was examined with the help of the Parks-Kmenta Estimator. If the model has an inter-unit correlation, heteroscedasticity, and autocorrelation, Parks-Kmenta, Beck-Katz, and Driscoll-Kraay estimators give more robust results. On the other hand, if we have N>T, the Driscoll-Kraay estimator is more robust, while if we have T>N, the Parks-Kmenta estimator gives more accurate results (Tatoğlu, 2013: 277; Kamacı et al., 2019). This study used the Parks-Kmenta estimator because it provides robust estimates due to heteroscedasticity and inter-unit correlation since T>N. Parks (1967) developed a method to estimate a linear regression model if there is a correlation and heteroscedasticity problem in the error terms of the model. On the other hand, in 1986, Kmenta contributed to some of the deficiencies of this model and pioneered the use of the model in question in wider circles. The model developed by Parks-Kmenta allows robust standard errors to be obtained without changing the parameter estimates. Thus, effective and consistent estimates can be made even if there is at least one heteroscedasticity, autocorrelation, and inter-unit correlation in the estimated model. Only in such a case can the estimated model achieve a suitable regression structure (Doğan and Afşar, 2021: 694).

3.5. Model Estimation Results

In this part of the study, the model template to be estimated was created with the help of the Parks-Kmenta Model and is presented in Equation (1) below:

$$LnRE_{it} = \alpha_i + \beta_1 CCPI_{it} + \beta_2 lnGDP_{it} + \beta_3 POP_{it} + \beta_4 INF_{it} + \varepsilon_{it} \quad (1)$$

The hypothesis regarding the model to be estimated with the help of Equation (1) can be expressed as follows:

H1: The climate change performance index directly affects environmental investments. According to the hypothesis above, environmental investments will be positively impacted as countries' CCPI values increase. Descriptive test statistics regarding the variables used to test the hypothesis in question are presented in Table 2.

Table 2. Descriptive test statistics of variables

Variables	Obs	Mean	Std. Dev.	Min	Max
LnRE	112	83452.75	109298.1	5322	421540
CCPI	112	52.40205	8.790408	25.28	70.5
LnGDP	112	7493.797	3522.941	1087.583	14630.37
POP	112	.8193422	.4668003	-.3528431	1.519431
INF	112	6.838152	8.491751	-.7281653	72.30884

To determine the relation between CCIP and environmental investments in E-7 countries, first of all, it is necessary to decide on the existence of a correlation between units in the countries forming the panel data; in other words, it is required to examine the cross-section dependency. In this context, since the time dimension is larger than the cross-section dimension in the study (T>N), the Breusch-Pagan LM test results were considered, and the hypotheses were determined and expressed in Table 3.

Table 3. Cross-section dependency test results

Test	Statistic	Prob.	Hypothesis
LM_{BP}	75.63	0.000	H0 = There is no cross-sectional dependence H1 = There is a cross-sectional dependence
LM_{adj}	13.35	0.000	
LM_{CD}	5.646	0.000	

When the probability value obtained as a result of the test presented in Table 3 is less than 0.05, it can be said that H0 hypothesis is rejected at a significance level of 5%. This means that a cross-sectional dependency exists between the units forming the panel. If there is a cross-sectional dependency between the units forming the panel, when a shock occurs to any units forming the panel, all units in the panel will be affected.

In the next stage of the study, it is necessary to determine whether heteroscedasticity and autocorrelation problems that may lead to errors and deviations in the model estimation results are observed. A modified Wald Test was performed to determine whether a heteroscedasticity problem was observed in the study model. Born and Bretuing (2016) conducted a study to determine the autocorrelation problem in the model, and the test results in question are given in Table 4.

Table 4. Heteroscedasticity and autocorrelation test results

Test Name	Test Statistics
Born and Bretuing (2016)	2.58 (0.010)
Modified Wald Test	453.02 (0.000)

As it can be understood from the test results presented in Table 4, a heteroscedasticity problem was detected in the model since the probability value of the heteroscedasticity test obtained in the model considered in the study was less than the 5% significance level. In addition, the results of Born and Bretuing (2016) indicate an autocorrelation problem in the model.

As emphasized above, in the models considered, if there is at least any of the following – heteroscedasticity problem, autocorrelation problem, and inter-unit correlation – and also if T>N, more effective estimation results are obtained with the help of the Parks-Kmenta Estimator. Therefore, since the heteroscedasticity and inter-unit correlation exist and if T>N is valid in the study, the model is estimated with the help of the Parks-Kmenta estimator, and these results are given in Table 5.

Table 5. Parks-Kmenta estimator results

	Coefficient	Std. Err.	Z Value	P>|z|	[95% conf. Interval]	
CCPI	0.0111	0.0020***	5.31	0.000	0.007041	0 .0152713
POP	-1.2310	0.0457**	-26.93	0.000	-1.320677	-1.141502
LnGDP	0.0649	0.0188**	3.44	0.000	0.0279045	0.1018997
INF	-0.0069	0.0016***	-4.12	0.000	10.14003	10.91038
Number of obs = 112 Number of groups = 7 Wald chi^2 (1) = 1157.53 Prob>chi^2 =0.0000						

Note: *** and ** signs indicate 1% and 5% significance, respectively.

According to the results of the Parks-Kmenta estimator expressed in Table 5, the CCPI increase positively affects environmental investments. This result shows that CCPI – whose objective is to increase clarity in the international climate policies in the period considered in the E-7 countries and which allows a comparison of the progress made by the countries in the climate protection efforts – plays an important role in encouraging environmental investments. On the other hand, population growth is the other variable considered to affect environmental investments in the study. It is notable that population growth negatively affects environmental investments, and the coefficient is statistically significant. Population growth also means an increase in the energy demand. Non-renewable (fossil-based) energy resources meet the increasing energy demand in the E-7 countries. This negatively affects environmental investments. The other variable examined in the study is the real GDP per capita. It was found that an increase in the real GDP per capita positively affects environmental investments, and the coefficient is statistically significant. The increase in the real GDP per capita means a higher income increase in the country. Thus, this situation is

seen as an advantage in covering the cost of environmentally friendly investments, which have relatively high initial installation costs. The last variable affecting environmentally friendly investments is inflation, examined in the study. Accordingly, it is seen that the rise in inflation has an adverse effect on environmentally friendly investments. In addition, the coefficient was found to be statistically significant. Inflation is generally seen as an uncertainty, and it causes investors to be hesitant in making decisions about the future. Considering that environmental investments are similar to other types of investments, the uncertainty created by inflation is expected to affect environmental investments in the E-7 countries negatively.

4. Conclusion and Policy Implications

Today, many national and international initiatives are within the scope of combating global warming and climate change. In addition, many developed and developing countries are differentiating their growth and development policies with the objective to prevent these disasters. Although they vary from country to country, as well as from region to region, these policies mostly represent those policies which reduce carbon emissions and ensure energy efficiency. At this point, the key factor is renewable energy investments, which represent environmentally friendly investments. However, according to Abban and Hasan (2021), the amount of environmentally friendly investments is not the same in every country. This is because the determinants of environmentally friendly investments vary from country to country. While financial and economic factors are more encouraging in increasing these investments in some countries, international sanctions are the driving force in this regard in some other countries as well.

This study aims to empirically examine whether CCPI is effective in the success of environmental investments in the E-7 countries in the period of 2008–2023 with the help of the Parks-Kmenta estimator. In this direction, the study's dependent variable is environmental investments, represented by renewable energy investments. On the other hand, the climate change performance is represented by the 'Climate Change Performance Index' calculated by *Germanwatch*, which constitutes the main independent variable of the study. Other control variables considered in the study are the population growth, the real GDP per capita, and inflation. The study findings provide strong evidence that increases in the climate change performance support environmental investments. High-rate climate change performance drives governments and investors toward investing in this area; thus, environmental investments tend to increase. These results are consistent with the study results of Raza et al. (2021). As a result of their study, Raza et al. (2021) stated that the climate change performance is an important channel for the general environmental change, and that renewable energy has a very important role in this regard.

In addition, the study concludes that population growth and inflation negatively affect environmental investments. These results are consistent with Suhrab et al. (2023), but not with Yang et al. (2016). While Suhrab et al. (2023) obtained results regarding the negative effects of inflation on green investments, Yang et al. (2016) focused on the positive effect

of population on renewable energy. Finally, the effect of the real GDP per capita on environmental investments has been found to be positive. These results are also consistent with Tudor and Sova (2021). The authors found that Real GDP encourages green investments.

This study offers policymakers a number of policy recommendations. These are presented below.

- One of the important factors affecting the climate change performance is the raising of awareness of the populations in these countries at this point, and providing them with the knowledge to demand clean energy. In this way, consumers, would demand environmental energy, and investors would invest more in this area. This is of great importance in increasing environmental investments.
- The climate change performance also shows how transparent the energy policies implemented by countries are. Therefore, the more achievable and explanatory are the goals of policy makers in this regard, the more climate change performance will increase, which will strengthen environmental investments.
- Moreover, the initial installation costs are the most important obstacles on the way toward developing environmental investments. At this point, the country needs to develop support mechanisms that would encourage investors to invest more.
- Environmental investments, similar to other types of physical investments, are greatly affected by the country's macroeconomic indicators. At this point, a stable and foresighted economic policy will encourage an increase in such investments. The countries in the sample group represent developing countries. Therefore, in many countries in this category, the savings rates within the country are insufficient to make investments. At this point, the financial system that will bring together those who supply funds and those who demand funds in the country; this system needs to be developed further. In addition, more extensive use of new and various financial instruments should be encouraged with the objective to collect the capital required for environmental investments.

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